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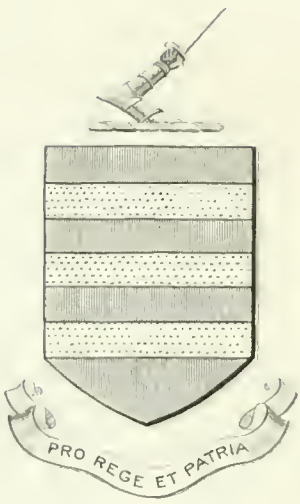

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THE

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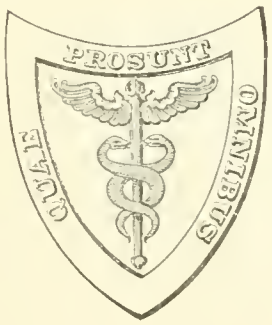

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ORIGINAL LECTURES.

GUNSHOT WOUND OF THE BODY.

A Clinical Lecture, Delivered at the Pennsylvania Hospital.

BY JOHN H. PACKARD, M.D.,
SURGEON TO THE HOSPITAL.

GENTLEMEN: On the evening of the 23d inst., there was brought into the hospital a woman who had just been shot by her husband. At my lecture the next day, as her condition was not such as to warrant her being brought before you, I gave you the details of her case.

She had received two shots from a revolver. One bullet had struck her on the right side of the thorax, two or three inches below the axilla, and had lodged beneath the skin, whence it was easily extracted by a slight incision by the resident surgeon. The other wound was in the left side, between the ninth and tenth ribs, a little in front of a vertical line passing through the axilla. A probe could be passed forward along the thoracic wall, in the track of the bullet, for about three inches; further than this the missile could not be followed.

I noted also a very small spot of ecchymosis on the surface of the right breast, an inch or more above and to the inner side of the nipple; but this did not then seem to have anything to do with either of the other wounds.

As nearly as could be ascertained, when the first shot was fired, the woman was facing her husband, and had her baby in her arms; the bullet, of the size known as thirty-two, struck her corset-bone, which dented it and destroyed its momentum, so that it merely penetrated the skin and lodged. On receiving this shot, she seems to have faced about away from the man, when he advanced toward her and fired again just as she stooped over to lay the child down. Thus, the first bullet struck her from in front, the second from her left side, ranging slightly upward and forward, as well as toward the median line of her body.

This woman's physique was singularly fine, and on admission there was very little shock. Her chief complaint was of pain and tenderness in the epigastrium, and in the right iliac region; she had no pain in the chest, although her breathing was somewhat embarrassed. At first sight it seemed to me probable that the second bullet might have entered the abdominal cavity and lodged there; and that the question arose whether it would not be best to follow it—to lay open the abdomen with the view of trying to repair any damage inflicted by the ball in its course, and of removing the ball if it were lodged where its presence would be likely to do further harm.

Such a procedure, which, a few years ago would have been regarded as utterly foolhardy, is among the recognized resources of modern surgery, and not a few instances are on record in which lives have been thus saved. Yet its gravity demands that it should be adopted only after careful weighing of the chances. I, therefore, sought the counsel of my colleagues, and abstained from disturbing the woman for examination until they should be present. Dr. Morton was the only one who could be reached, and he, very kindly, came at once.

On his arrival, we proceeded to examine the patient. There were no symptoms except such as have been already described; no tympanitic distention of the abdomen, and none of the general signs of internal hemorrhage. But when she sat up in bed, an examination of the chest showed dulness over the whole of its right side on percussion, while the respiratory sounds could scarcely be heard. This condition, coming on suddenly, could, under the circumstances, have but one meaning—there had been rapid hemorrhage into the pleural cavity. As there was no cough or expectoration of frothy blood, it was not probable that the lung had been wounded. We had no clew to the source of the bleeding, and could do nothing directly to check or control it. So grave and threatening a complication was of itself enough to forbid the idea of laparotomy.

We had here the statement that there were two bullets, and the examination of the woman's clothes bore it out; they showed on the right side the holes made by the first, coming from in front and from some distance; on the left, the holes at the side, with the stuff charred by the burning powder, showing that the shot was fired at very close range. The first bullet had been extracted, and had clearly not entered the pleural cavity. The second had evidently entered the abdominal cavity. What was the source of the hemorrhage into the pleura, and by which bullet was it caused? I was inclined to think, but wrongly, as it was afterward proved, that the first bullet had struck a rib, and detached from it a splinter, by which an intercostal artery had been wounded. It did not then occur to me that the second bullet could have gone into the thorax and caused the bleeding.

The woman was kept at perfect rest, under the influence of opium, with a large flaxseed poultice over the whole abdomen. Small quantities of liquid diet were ordered, and to allay her thirst she was given bits of ice to suck. The next day all her symptoms were aggravated, and there was decided evidence of failure of strength. Her countenance became pale, pinched, and anxious; her lips blue; her skin cool and bedewed with sweat; her pulse weak and rapid, and her breathing shallower and more oppressed. It seemed probable that there had been a continuous flow of blood into the pleural cavity; but she was too ill to allow of an examination of the chest merely in order to satisfy curiosity on this point. No distinct evidence of peritonitis was present. Death ensued about thirty-six hours after admission to the hospital.

At the autopsy, a most remarkable state of things was

discovered. The first bullet had simply, as supposed, penetrated the skin and lodged, doing no damage of any consequence. The second one had pursued a course as follows, which I will ask you to note carefully: Entering between the ninth and tenth left ribs, about an inch posterior to their junction with their cartilages, it ran along the wall, penetrated the diaphragm, and thus entered the abdominal cavity in a direction upward and inward; wounded the stomach near its lesser curvature and cardiac end; struck the liver two inches from its anterior border and one inch to the left of the suspensory ligament, across which it passed, ploughing the substance of the gland to the depth of half an inch and for a distance of three inches; pierced the diaphragm again, and cut the right mammary artery across; passing out at the fifth interspace, it then entered the mammary gland, reached the skin and made the small bruise referred to, dipped back again, and finally lodged under the skin about an inch from the point where the first bullet was found. The right pleural cavity contained about a pint and a half of fluid blood. In the peritoneal cavity there was no blood, but some undigested food, and the serous membrane was in a state of pronounced inflammation.

No disease of any organ was detected.

Now if the position of this woman at the time she received this shot be carefully considered—turning away and stooping over—it will be obvious that the course followed by the bullet, apparently so tortuous when described, was in fact almost a straight line. Only when the skin was reached and bruised was there a deflection, the tough skin offering more resistance than the areolar tissue and fat overlying the breast.

Very probably she was shrieking, and thus the diaphragm was strongly arched upward in expiration; this would not only slope the upper surface of the liver, but would bring the thinner part of the septum opposite the point at which the bullet left the gland.

I have great doubts whether, even if we had had a more accurate idea of this patient's position at the time of the shooting, we should have guessed at the course of the ball; for in the movement she was making, turning round and stooping over, there was a very complex change in the relations of the viscera to one another, as well as to the abdominal walls. Easy as this is to understand now, it must be remembered that we have the course of the ball as traced at the post-mortem examination to make it clear; it would not otherwise have suggested itself. And an accurate knowledge of the condition of things would have been of no avail in the matter of treatment.

The bullet had done all the damage it was going to do, and had lodged in a place where it was quite innocuous. Its removal was a matter of very small moment. A better illustration could hardly be afforded of the fallacy of the popular idea, that in cases of gunshot wound the finding and extraction of the ball must be at once effected, as of prime importance to the welfare of the patient.

Could anything have been gained in this case by surgical interference? Had the source of the hemorrhage into the pleura been known, there is no doubt the vessel could have been secured, but only by a procedure in itself difficult and grave. For mere ligation would not have answered; both ends of the divided artery must have been found and tied, or bleeding would have continued from the distal orifice, by reason of the free anastomosis existing with the epigastric. But, as before remarked, there was nothing to indicate at what portion of the thoracic wall a vessel had been wounded.

Had I opened the abdomen, I should have failed to find the bullet. The wound in the stomach could have been closed without difficulty, but, except by a very extensive division of the abdominal wall the thorough cleansing of the peritoneum could not have been effected, and inflammation of the serous membrane would otherwise have been inevitable. And although there had been no hemorrhage from the laceration of the liver, this lesion would scarcely have been amenable to any treatment.

In connection with this case, let me mention another which occurred in my ward last summer. A man, aged twenty-eight, was brought in one night, having been shot with a revolver an hour or two previously. The ball, fired at close range, had entered the left side of the abdomen, low down, and lodged. There was but little shock, and reaction soon ensued. The man was placed under the influence of opium, and ice-water was applied locally. He was stupid, but not unconscious—and was easily roused, so as to identify the man who had shot him. For three days his temperature remained at about 101.5°; then it went up to 103.5°. On the fourth day it was 104°, falling toward evening to 102.5°; then death ensued. At the autopsy it was found that the bullet had wounded the colon, and the ileum at two points, making five wounds; it had then penetrated the psoas magnus muscle, and lay between the transverse processes of the second and third lumbar vertebræ. Fecal matter had escaped into the peritoneal cavity and caused acute suppurative peritonitis.

It has always been a matter of regret to me that I did not, in this case, perform laparotomy, cleanse the serous membrane carefully, stitch up the wounds in the intestines, and thus give the patient the only chance for his life. One reason for this was that I did not see the patient until twelve hours or more had elapsed from the time of the shooting. Some difficulty was experienced in finding the ball, even at the post-mortem; but as it had lodged where it would have been comparatively harmless, its removal would not have been essential to success.

In still another case, recently admitted, a sailor had been shot in the abdomen about an hour previously, and was in a state of profound collapse, with a pale, cold surface, pinched face, and absence of pulse at the wrist. Here laparotomy was hopeless, and not to be thought of. The bullet was found to have wounded the spleen, causing fatal hemorrhage; it had then passed through the diaphragm, fractured a rib, and lodged under the skin.

Let me, in conclusion, offer some general remarks as to the operation of opening the abdomen in cases of gunshot wounds of this region.

It must be borne in mind that this procedure is itself of great gravity, and the patient's general condition must be fairly good to enable him to withstand the additional shock involved. The surgeon's prime object must be to do all that is possible to save life; but he must not overlook the fact that his course may be severely criticised, especially in cases which give rise to

medico-legal inquiry. Thus, as in the well-known Fisk case in New York, a few years since, it may be claimed that the treatment resorted to was the cause of death. Hence it is always advisable for the surgeon to have his own opinion fortified by the support of one or more consultants, especially in case of any departure from standard procedures, or from the rules laid down by recognized authorities.

There must always be reason to suppose that some definite object can be gained by opening the abdomen; such as the closure of wounds of the intestine, or the arrest of hemorrhage, or the cleansing of the peritoneum.

It must be a question to be decided in each case, whether the existing wound should be enlarged, or a new incision made in the linea alba. Generally I believe the latter to be best, as giving the freest and safest access to all wounded parts, and enabling the surgeon to assure himself that what is called by some the "peritoneal toilet" is thoroughly attended to. The median incision involves scarcely any bleeding, and what there is can be readily checked. If the incision is made in any other region, some vessels of importance are almost sure to be met with, and should be carefully secured as they spring.

Antiseptic precautions are eminently proper in these cases, although not indispensable.

Whatever is done must be done thoroughly. It would be absolutely useless to sew up all but one of the wounds of the intestine, or to tie all but one of the divided vessels, or to cleanse the peritoneum everywhere except in one recess.

I do not go into any detail as to the precise forms of suture to be used, the material to be employed for this purpose or for the tying of arteries, or the methods of dressing to be preferred. All these are matters about which different surgeons hold different opinions, and in which it is to be hoped that improvements will be made in the near future. The whole subject is one worthy of your careful study, and the more so that when you are called upon to act in such cases, there is no time for reading up, but your course must be promptly decided on and as promptly carried out.

ORIGINAL ARTICLES.

A CASE OF PENETRATING STAB WOUND OF THE ABDOMEN, WITH PROTRUSION AND WOUNDS OF THE INTESTINE.

BY HENRY W. BOONE, M.D.,
SURGEON TO ST. LUKE'S HOSPITAL, SHANGHAI, CHINA.

A. S., native of China, painter, aged twenty-one, single, admitted to the hospital December 27, at 11.15 P.M., about three hours after the receipt of his injury. He was stabbed in the abdomen with a large, sharp knife. The wound was two and three-quarters inches below the umbilicus, and one and a half inches to the left of the median line. A piece of small intestine fourteen inches long protruded from the wound. There were four wounds transverse to the long axis of the intestine; the mucous membrane was everted and protruding. The largest wound was one and a quarter inches long, the smallest half an inch. There was also a large ragged, contused, bloodshot surface on the gut near the mesenteric attachment. The mesenteric vessels were cut and bled freely in a good many places. This wound was one and three-quarters inches by one and a half inches, and was on both sides of the intestine near the mesenteric attachment. The protruded gut blocked up the wound of the abdominal wall, but it was not constricted enough to stop the bleeding from the wounded mesenteric vessels.

After consultation with my colleague, Dr. R. A. Jamieson, I decided to sew up the two clean cuts furthest from the large contused wound by the Czerny-Lembert suture. In order to save time, Dr. Jamieson sewed up one cut while I sewed up the other. We then passed strong double catgut ligatures through in two places, and tied the mesentery *en masse*, below the ragged wound which involved the vessels of the mesentery, then secured both sides of the gut and excised a piece three and a quarter inches in length, including the ragged part and the larger transverse cuts near it. The patient was much exhausted from the loss of blood which had occurred before he was brought to the hospital. As it was late at night and our supply of fine catgut was exhausted, we decided to secure the two ends of the gut in the wound and make an artificial anus. After the wound in the abdominal wall had been enlarged slightly by an upward incision, the two ends of the intestine were fastened to the circumference of the wound by deep sutures of strong braided silk which had been carbolized. These sutures went through the entire thickness of the abdominal wall including the peritoneum, and also through the serous and muscular coats of the intestine. The hands of the surgeons and assistants were thoroughly washed and carbolized, all instruments were dipped in a five per cent. carbolic solution, the sponges used were already prepared and lying in a five per cent. carbolic solution in a glass jar. The wound was irrigated with a warm two per cent. solution of carbolic acid and every precaution taken to keep it aseptic. The temperature of the room was kept up to 70°, and the patient had from time to time small doses of hot brandy and water. The solution of bichloride of mercury was not used, because the operator has been slightly poisoned by it on several occasions. After cleaning up the patient carefully, a large carbolized sponge was put over the wound and a lot of fresh tarry oakum put on.

Just as the wound was dressed, and before the bandage was put on, the patient vomited a large meal smelling strongly of liquor, which he admitted having taken. This food had not had time to pass from the stomach to the intestines. The intestines appeared to be empty. On raising the dressing the wound was found to be clean and not disturbed by the act of vomiting. Applied a binder, gave a hypodermatic of a quarter grain of morphia, and put him to bed with hot bottles, as he felt cold. The operation began at 11.45; it was completed and the man was put to bed at 2 P.M. At 2.45 P.M., he was sleeping soundly.

Dec. 28. 7.30 A.M., patient awake, is bright and cheerful, no pain, desires to eat. To have weak tea

to wet his lips with, nothing else. Morphia, one-quarter grain every four or five hours. 5 P.M., passed one pint of clear urine.

29th. Passed wind and some liquid by the anus. 9.30 A.M., removed the dressing, wound clean, healthy; powdered iodoform, oakum, and binder. 11.30 A.M., fecal matter flowed from wound and wet the dressings. 2.30 P.M., changed dressing. Soft yellowish-brown stool, three ounces, in dressing.

30th. Patient is a little tender to pressure over abdomen, but feels no pain.

31st. To take one ounce of beef tea every half hour. The native nurses could not be depended upon, and he would have taken food of his own choosing if I had not allowed him the beef tea. Abdomen slightly tender to touch, two inches larger than it was yesterday, tongue clean, moist, pulse soft. The highest temperature was $99\frac{3}{5}^{\circ}$ on the afternoon of the third day, highest respiration 22. He has a stool in dressing morning and evening when it is changed. The weather is very cold and raw. 9 P.M., temperature $101\frac{3}{5}^{\circ}$, cough and slight red streak in sputa, mild attack of pneumonia at bases of both lungs posteriorly; moved the patient, bedstead all, into a small room where we could keep him warmer. His skin is of a rather bad yellow color.

Jan. 1. Slept well, free from pain, slight cough, rusty and mucopurulent sputa, both in bowl; says he had bronchitis for two or three weeks before admission.

3d. An enormous round worm was found protruding from wound; passed nineteen worms at different times. Skin raw on left side of abdomen; zinc ointment.

4th. Bad night, looking very poorly; wound sunken and slightly ulcerated around the edges. Removed the stitches, as they were cutting into the skin. Although his pneumonia is clearing up, he is very feeble and worn out.

5th. Much better, he refused brandy and milk, complains that it makes him worse. Takes beef tea and rice gruel. He has no pain at all in abdomen.

8th. To have soup and fish. The patient has recovered from his pneumonia.

22d. Gave an enema of soap and water which returned unchanged.

27th. One month after the receipt of the injury, sat up in bed supported by a bed rest.

Feb. 9. The wound is healthy, has contracted and the patient is in excellent health. I tried to insert a rubber tube into both the upper and lower ends of the divided bowel. This plan was suggested by W. Mitchell Banks, surgeon to the Liverpool Royal Infirmary (*Med. Times and Gazette*, May 9, 1885, p. 603: Use of rubber tube in place of enterotome, to remove spur of intestine in artificial anus.) Found lower opening too small to receive the tube. Dilated lower opening with sponge tent, and inserted a rubber tube three-eighths of an inch in diameter, three inches into the upper, three and one-half inches into the lower end of the intestine and made it fast by a silk string. This thick, strong, elastic tube at once partly straightened itself, depressing the spur between the two ends of the bowel and becoming buried one-quarter of an inch below the surface of the wound.

11th. Some fecal matter passed by the anus.

12th. Removed small tube, and inserted rubber tube five-eighths inch in diameter, seven inches long.

14th. Enema with three ounces of castor oil, one good stool by the anus.

16th. One stool.

17th and *18th.* Slight diarrhœa. A very little fecal matter by the artificial opening. Has taken his food well all the time. Pulse and temperature good.

19th. Large stool by artificial anus.

23d. Doing well. An enema with two ounces of castor oil to insure stool by the rectum.

27th. He continues to pass his feces by the anus, little or none passing through the wound. He never has a stool by the anus unless the large enema with castor oil is given.

March 4. Removed the tube from the bowel to let patient try to pass feces naturally.

11th. Wound much better than it was one month ago when the rubber tube was first inserted, and it is more sunken. The tube was removed six days ago, he had one stool by the anus next day, since that time everything passes by the wound. As the enema is creating irritation and a slimy discharge, it was discontinued.

16th. On inserting the finger into the upper end of the bowel it goes in the full length into a large free intestinal cavity, and meets with no opposition. On inserting the finger into the lower end of the bowel it goes easily for two and a half inches, then enters a constriction which yields to pressure. The finger goes in as far as I can reach, but it is grasped with a peculiar motion, like a mouth sucking. It seems that the intestine is contracted at this point. A foreign body inserted here causes peristaltic action, but unless a large tube is passed through this place the feces all flow out through the artificial anus instead of going through the lower bowel. Attempts were then made to plug the artificial opening by a wad of cotton secured by adhesive plaster, but caused pain which the patient would not stand. He removed the plug.

17th. Painted all around artificial anus with collodion, to try to get the wound to close.

27th. Patient is well and gaining flesh. Still passes everything by the artificial opening. The wound contracted to a small hole which admits the forefinger. The patient and his friends desire a decisive answer as to his prospects. He was told that, as he was unwilling to submit to the very moderate pain caused by wearing a plug to close the artificial opening, the feces passed out through that orifice as the place where there was the least resistance. He was given the alternatives, to submit to the use of the plug, to undergo a resection of the divided ends of the bowel, or to return to his home. The dangers of the operation for a resection of the bowel were explained to him, and also the complete restoration which would ensue from a successful issue of the operation. After some days the patient and his friends determined that he should return home. They said that should he decide to submit to any further treatment he would return to the hospital.

30th. Discharged.

Remarks.—When the patient was admitted to the hospital he was greatly exhausted from loss of blood and chilled by exposure in his wet clothing to the freezing weather out of doors. My colleague and I came to the conclusion that we must excise a portion of the intestine as it was severed from its mesenteric attachments, and so greatly injured that it must necessarily become gangrenous if returned to the abdominal cavity. The man's condition was such that we deemed it necessary to complete the operation and get him to bed as soon as possible for fear of mortal collapse. We had no suitable needles or catgut at hand to join the two ends of the intestine with. Our assistants were Chinese, willing, but not very efficient, and we did not have all those appliances which a great hospital at home can place at the disposal of its surgeons.

On gently drawing down the ends of the intestine which protruded, it was found quite free from injury. I did not deem it necessary to perform a laparotomy and search for other visceral injuries. The wounded intestine and the extravasation of blood were outside of the abdominal cavity. It was specially an operation of emergency to stop bleeding in a patient with little vital power left; this prevented my choosing any plan of treatment which would have prolonged his stay upon the operating table.

With regard to the attempts at a final closure of the wound, there is no doubt in my mind that a persistent attempt to close the artificial anus by a well-fitting cotton pad secured by adhesive plaster would have been crowned with success. The peristaltic action of the bowel would have overcome the moderate resistance of the lower end of the intestine. The daily passage of fecal matter would have gradually accustomed the intestine to the resumption of its proper duties. Unfortunately, it is impossible to get a native nurse with the firmness needed to control an ignorant and wilful patient. No other nurses could be obtained, and for the want of power to carry out this simple and easily managed plan of treatment, I had to allow the patient to go home with an artificial anus.

The valuable assistance and advice of my friend and colleague, Dr. Jamieson, contributed very materially to the happy issue of the case.

PERNICIOUS ANÆMIA.

EXTREME REDUCTION OF THE NUMBER, WITH ALTERATIONS OF THE SIZE AND SHAPE, OF THE RED CORPUSCLES; RECOVERY.

BY FREDERICK P. HENRY, M.D.,

PROFESSOR OF CLINICAL MEDICINE AT THE PHILADELPHIA POLYCLINIC; PHYSICIAN TO THE EPISCOPAL HOSPITAL.

ON October 5, 1885, at the request of Dr. Morris J. Lewis, I examined the blood of a patient under his charge in the female medical ward of the Episcopal Hospital, and sent him the following report:

"Number of red corpuscles per cubic mm. 560,000. Percentage of corpuscles, as compared with the standard of health (5,000,000)—that is, the 'hæmic unit'—11.2 per cent. Hæmoglobin, 11 per cent. No white seen in the specimen examined. The corpuscles vary greatly in size and shape, many of them being much larger than normal. An undoubted case of pernicious anæmia."

On October 27 I examined the blood again, with the following result: Number of red corpuscles per c. mm., 840,000; white not increased; hæmic unit, 17; hæmoglobin, 12 per cent. The hæmoglobin had not increased in proportion to the increase of the corpuscles since the last examination.

On January 26, 1886, the patient was kindly sent to me by Dr. Henry M. Fisher, to whose care she had been transferred by Dr. Lewis, in the regular rotation of hospital service, shortly after my second examination. In a note which she brought with her, Dr. Fisher stated that he had quite recently examined the blood and found 3,431,250 red corpuscles per cubic millimetre.

The result of my examination was as follows: Number of red corpuscles, 3,670,000; hæmic unit, 73.5; color (hæmoglobin), 38 per cent; very few corpuscles above normal size; most of them smaller than normal; white very scanty; a few microcytes. The following notes were written at the time of this examination: "This case, which, at the first and second examinations, presented every symptom of pernicious anæmia, now resembles more one of chlorosis. Had I seen it to-day for the first time I would have unhesitatingly pronounced it a case of chlorosis, being led to such a diagnosis by the great diminution of the percentage of coloring matter as compared with that of the corpuscles. Taking 5,000,000 corpuscles as the healthy average per c. mm.—and this is high for a woman—the coloring matter in this case would represent 1,900,000 healthy corpuscles. The diminished percentage of hæmoglobin is now partly due to the diminished size of the corpuscles, as its former high percentage was due to their increased size. Is there a transition between idiopathic (pernicious) anæmia and chlorosis, and is this transition manifested in both directions? that is to say, is chlorosis sometimes the first stage of pernicious anæmia; and *vice versa*, Does a patient recovering from pernicious anæmia pass through a stage of chlorosis on his way toward recovery?"

Before attempting to discuss these points, I will append the clinical history of the case from notes furnished me by Dr. Fisher.

Anna D., æt. thirty-five years, English, domestic, married, sterile; was admitted September 18, 1885. The catamenia began at twelve, and were perfectly regular until June, 1885, when they ceased, and have not since returned. Her father died at the age of eighty-one; her mother of phthisis at fifty-five; one brother died of pneumonia at thirty; two sisters are still living. She was married at nineteen, and has never been pregnant. Has been in the country eleven years, and every summer has suffered from general debility and palpitation of the heart. Dates her present illness from April, 1884, and attributes it to the excitement and overexertion attendant upon a trip with a sick friend to Harrisburg. Her first symptoms were gradual loss of strength, with dyspnœa and palpitation on going up stairs; and sick stomach, with vomiting of watery fluid on rising in the morning. At present—time of admission—she complains of nothing but extreme weakness. Her hair has become quite gray during the last year, and her skin is of an icteric hue; while the conjunctiva is pearly-white, and the nails are whiter than the surrounding integument. Her bowels are moved twice a day, and the stools are natural in consistency and color. The tongue is pale red, without fur. The liver and spleen are of normal size, and no enlarged lymphatic glands can be found. There is no cough. The apex beat of heart is diffuse and slightly tremulous. It is felt in the sixth interspace, but is strongest in the fifth interspace, an inch and a half inside of the nipple. There

is a systolic murmur over the anterior surface, loudest over the pulmonary valves. There is a venous hum in the neck.

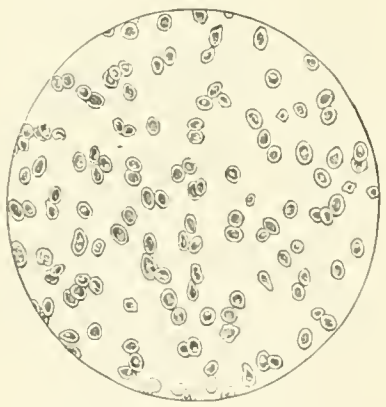
On admission, there was slight general œdema. The urine was free from casts, but contained pus corpuscles—three or four in every field—and a slight amount of albumen. The general intelligence is very good. Sleep is very poor.

The eyes were examined by Dr. B. Alexander Randall, one of the ophthalmic surgeons to the hospital, who made the following report: "Vessels pale; veins tortuous, particularly to the temporal side of left eye. No hemorrhagic spots, either new or old."

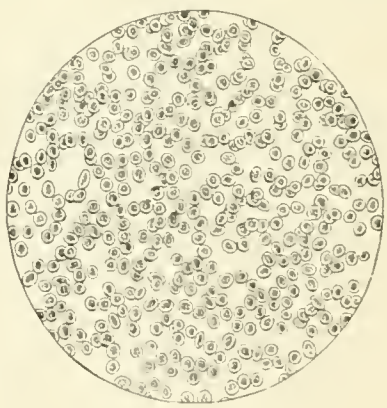
The treatment adopted was a Blaud's pill and Fowler's solution, gtt. v, thrice daily. This had to be stopped almost immediately on account of vomiting.

On November 4 liquor ferri dialysati, gtt. v ter in die, was prescribed. The dose was soon increased to twenty drops, thrice daily, and this treatment was continued until the patient's discharge from the hospital on Jauary 23d.

Although this woman's condition is, at the present date, by no means one of perfect health, yet she is able to go about and attend to light duties, speaks gratefully of her improvement, and intends to return shortly to England. These facts, however, would be very insufficient to warrant the published statement of her recovery. To prove that the case is one of recovery, it will be necessary first to consider what are the essential blood changes of pernicious anæmia; next, to show that they were well marked in the blood of this woman; and, finally, that they are no longer present.



Corpuscles of blood of pernicious anæmia.



Corpuscles of normal blood.

The cardinal features of the blood of pernicious anæmia are: great diminution in the number of the red corpuscles; no increase, or a slight relative increase, of the white corpuscles; increased size and altered shape of many of the red corpuscles; and, finally, a value in hæmoglobin of each red corpuscle equal to or exceeding the normal. This last is the most characteristic feature of the blood of pernicious anæmia, distinguishing it from all other forms, in which, without exception, the proportion of hæmoglobin is less than that of the red corpuscles.

In the case under consideration, the reduction in the number of the red corpuscles was extreme. A specimen of blood containing but 560,000 per cubic mm. is rarely encountered and never, I believe, in any disease but pernicious anæmia. They presented the well known alterations of size and shape, as figured in the accompanying cut; and, finally, the value of the corpuscles was normal, the hæmic unit being 11.2, and the proportion of hæmoglobin 11 per cent. The difference of 0.2 per cent. is infinitesimal. Notwithstanding the absence of retinal hemorrhage, so frequently met with in pernicious anæmia, there can be no question whatever concerning the diagnosis.

The question of recovery is more difficult and requires a little discussion. Recovery from a disease does not necessarily imply restoration to health. A patient with locomotor ataxia, Addison's disease, or phthisis, may recover completely from some intercurrent affection while the original disease persists. The fact that the primary may have given rise, directly or indirectly, to the secondary affection, has nothing to do with the question of recovery from the latter. In the case under consideration, a group of blood changes characteristic of but one disease—pernicious anæmia—is found by careful examination and, in the course of time, this is replaced by another set of conditions equally characteristic of another disease—chlorosis. A wonderful improvement in the patient's general condition has coincided with this radical blood change and, therefore, it is proper to speak of the case as one of recovery. The history of this patient demonstrates, so far as is possible on such evidence, that for years past she has been chlorotic.

The pernicious anæmia, from which I consider her to have recovered, was, therefore, an intercurrent affection, and the question propounded in the first part of this article, Is chlorosis sometimes the first stage of pernicious anæmia? may be considered answered in the affirmative. It merits, however, something more than a monosyllabic reply. Opinions are divided as to whether pernicious anæmia is due to the operation of a cause (unknown) *sui generis*, or to the prolonged operation of the ordinary causes of anæmia. The writer is of the opinion that the varied clinical history of the different cases on record furnishes most decided evidence in favor of the latter view. Anæmia once established tends to perpetuate itself in that species of vicious circle of which so many examples are furnished by pathology. Thus, to take an extreme example, the epileptiform con-

vulsions which immediately precede death from hemorrhage are due to cerebral ischæmia, and this very ischæmia is increased by the convulsions, for experiments have shown that the voluntary muscles contain a much greater amount of blood during contraction than while at rest. It is quite as essential to the blood-making organs as it is to the nerve centres that they be properly supplied with blood in order that they may act their important part toward maintaining the bodily health. Doubtless there are reserve powers and compensatory activities in each and all of the blood-making organs which may suffice to furnish a fair quality of blood under the most adverse circumstances. These powers, however, have their limit, and, once exhausted, the anæmia instead of continuing "simple," "functional," or "symptomatic," becomes "essential," "organic," or "pernicious."

The second question, Does a patient, recovering from pernicious anæmia, pass through a stage of chlorosis? is now to be considered. Nothing is more difficult in medical research than to obtain examples of any fact in the clinical history of a disease which has not before attracted particular attention. In addition to my own case, I know of but one other, reported by Laache,[1] in which, with restoration of the normal number of corpuscles, the proportion of coloring matter remained so much below normal as to warrant the designation of the condition as chlorotic. I believe that attention has only to be called to the facts of my own case in order to make general the observation that chlorosis is frequently the first stage of pernicious anæmia, and that a patient recovering from the latter disease frequently, perhaps invariably, passes through a stage in which, with a greatly increased, perhaps a normal, number of red corpuscles, the proportion of coloring matter is far inferior—that is, a stage of chlorosis.

FIFTY CASES OF LACERATED CERVIX TREATED BY SILKWORM GUT SUTURE AND IODOFORM.

By R. STANSBURY SUTTON, M.D.,
of Pittsburg.

Two weeks ago I completed a line of fifty lacerated cervix operations. These cases were all done in about twenty-four months. Each patient was prepared as usual, or as Emmet teaches. The instruments, sponges, and ligatures were scalded and used directly from the bath when sufficiently cool. The lips were well denuded, sound tissue being sought for always. They were carefully approximated and united with silkworm gut sutures, the ends left long. The cervix was then covered with a small teaspoonful of iodoform. The patient was put to bed, the catheter was not to be used unless the patient failed at the end of eight hours to pass water, and not again if it could be avoided. No douches were permitted until the sixth or, more generally, the seventh day, when a douche was given to clean the vagina preparatory to removing the sutures.

In forty nine of the cases the temperature never exceeded 100° F., and in many of them 99° F. In one some sepsis occurred and the temperature exceeded 100° F. All recovered; in one there remained for a short time a fistulous opening at the site of the upper stitch. In one the lower stitch cut out. Both were unilateral cases.

Silver wire and douches and catheter can give no better results, and this method of treatment is infinitely less annoying to the patients.

The large amount of iodoform has not given any trouble. Those who will follow me in this method will, I believe, find it an advantage over the method of silver sutures and frequent douches. They will get lower temperatures and these cases will require no skilled nurse.

Any ordinary attendant who will do only what she is told to do will answer as well as the best.

I will do fifty cases with silk and chemically pure powdered boracic acid. But better results than I have obtained in the fifty cases reported above can scarcely be expected.

419 Penn Avenue, June, 1886.

MEDICAL PROGRESS.

Massage as a Therapeutic Agent.—Dr William Murrell, in the *British Medical Journal* for May 15, 1886, discusses as follows the field of therapeutic usefulness of massage:

It is no easy matter to say in what class of diseases massage proves most useful. Unfortunately, its employment has been advocated in many cases for which it is essentially unsuited. Accurate diagnosis is of the utmost importance, and the sphere of usefulness of this remedy will, with increased experience, become more accurately defined. My best results have been in infantile paralysis; and it was in consequence of the success achieved in certain obstinate cases of this disease, that my attention, as has been elsewhere stated, was directed to the subject. Progress is often slow, but the ultimate results are most satisfactory. The nutrition of the parts is maintained until new cells in the spinal cord take on the functions of those which have undergone degeneration, or have been destroyed. Massage is, undoubtedly, of much value in many cases of obstinate neuralgia, and succeeds admirably in some forms of muscular pain, such, for example, as those described by the late Dr. Inman under the term "myalgia." There is a general consensus of opinion that it is well adapted to the treatment of chronic joint affections; and most of those I saw treated by von Mosengeil were such as would, in this country, be considered incurable, or would drift into the hands of "bone-setters." There are some diseases of internal organs in which it is, undoubtedly, useful. Not long ago a gentleman, aged sixty-eight, came to me complaining of shortness of breath, and increasing disinclination to take exercise. He had been in business, and had led a most active and energetic life. Three or four years ago he retired, and, from that time, experienced a gradual falling off in health. His appetite was poor, his bowels were obstinately confined, and he was nervous and anxious about himself. He was found to have a loud apex systolic murmur, and

[1] Die Anämie, p. 190, Case No. 9.

the heart's action was weak and irregular. I suggested massage, which was carried out systematically four days a week for a period of six weeks. He improved from the very first, and, before the conclusion of the course, was better than he had been for many months. His appetite returned; his hands and feet were warmer; the bowels became regular; he slept well at night; and his spirits improved in a most satisfactory manner. In other cases of obstinate constipation, especially in women, I have known massage of the abdomen do a great deal of good.

In a well-known group of symptoms from which women frequently suffer, massage is essentially useful. I recently saw a lady, aged forty-five, or thereabouts, a professional singer, who was laboring under the impression that she was going mad. She was so nervous that she was quite unable to accept an engagement, although she had been constantly before the public, and had hardly missed a night for twenty years. She told me that she felt she was not to be trusted, and that, if left alone, she would do herself or her children an injury. She was afraid to go near an open window, so great was the temptation to throw herself out; and she even begged that the knives might be removed from the table at dinner. These symptoms were greatly intensified after each monthly period, and she insisted that she was suffering from cancer, or some organic disease of the stomach or womb. She was restless at night, and would often get up in the early morning, and walk for hours, until thoroughly exhausted. She was given full doses of the bromides—a drachm, or more, four times a day—but with only temporary benefit. Massage was then tried; and it seemed, to use her own expression, to soothe her, and calm her, and make her forget her troubles. The case was a prolonged one, but now, at the expiration of three months, she is much better, and will soon be able to resume her professional duties. In several other cases of restlessness and inability to sleep, the same method of treatment has proved efficacious.

Dr. Graham, of New York, speaks highly of massage in the treatment of neurasthenia. He uses it for those "who, in spite of rest, change, and medication, have become chronic neurasthenics, the result of business reverses, overwork, worry, loss of relatives, disappointed hopes, or as a sequel of some affection that has existed in some part of the system, but which has been recovered from or has become of secondary importance." These symptoms may be somewhat ill-defined; but I have certainly found massage of the greatest use in what, for want of a better name, has been called "spinal nervous weakness," or "neurasthenia spinalis."

In the treatment of corpulence associated with constipation, massage is of much value. Some months ago I saw a lady, aged thirty-eight, who, as the result of much good living and little exercise, had become inordinately stout. She was very short of breath, and was disinclined for exertion of any kind. She had been fond of literary pursuits, but even those had lost their charm, and were irksome to her. She was extremely irritable, and a source of trouble and anxiety to her friends and relatives. Massage was prescribed, and in two months she lost a stone and a half in weight, and improved notably in other respects.

For many forms of menstrual disturbance, massage may be safely prescribed. I recently saw a young lady, aged nineteen, who suffered intensely at each monthly period, the pain being so severe that hypodermatic injections of morphine had to be resorted to. Massage of the abdomen and pelvis was prescribed, and from that time there was no return of the trouble. Cazeaux has reported several similar cases, in detail. In the convalescence from acute illnesses, this mode of treatment is a great help and comfort to the patient. There can be no doubt that massage is a very valuable therapeutic agent, and is likely to yield good results in many complaints other than those I have roughly indicated.

Paraldehyde as an Antidote to Strychnine.—Bókai finds from numerous experiments on frogs, that the absolute lethal dose of strychnine sulphate in these animals ($\frac{1}{60}$ to $\frac{1}{30}$ grain) is not fatal when they are previously stupefied by the administration of 1½ to 3 grains of paraldehyde. Rabbits, also, when previously stupefied by paraldehyde, will resist amounts of strychnine which exceed many fold the minimal fatal dose. Similar results have been observed in dogs.

Bókai proposes the administration of paraldehyde in acute strychnine poisoning in man, and states that in this case the dose would vary between 90 and 180 grains of the antidote. It should present certain advantages over chloroform and chloral hitherto used with good results in this condition, in that it exerts no deleterious action on the heart.—*Centralb. f. klin. Med.*, April 10, 1886.

Paralysis of the "Glottis Dilators" as the Initial Symptom of Tabes Dorsalis.—Prof. A. Weil, of Heidelberg, in the *Berl. klin. Wochenschrift*, for March 29, 1886, gives a full account of a case of tabes dorsalis, which set in with peculiar laryngeal symptoms. The patient is a man, æt. forty-nine, and a pilot on one of the large rivers of Germany. About a year before he consulted Prof. Weil he had passed through intense excitement, from the fact that his boat was in danger of colliding with another. He issued his commands in a very loud tone of voice, and immediately thereafter had an attack of extreme dyspnœa, which lasted about ten minutes with crowing respiration, etc. Eleven months later he had a second attack of the same sort. From that time the least exertion produced a loud snoring respiration. Laryngoscopic examination showed that the margins of the glottis were two to three mm. apart during expiration, but during inspiration there was nothing but a cleft-like opening left. Phonation was entirely normal. These symptoms differ from those of ordinary laryngeal crises in several particulars: 1. They are not distinctly paroxysmal; there is a *permanent morbid condition* which is aggravated by physical exertion or mental excitement. 2. There is no cough. In regard to the question whether these symptoms are due to paralysis of the *ab*ductor or spasm of the *ad*ductor muscles, the author is not prepared to give a definite answer, but he inclines to the view that there is paralysis of the dilator muscles. The author gives a list of published cases in which symptoms of this sort were observed. He refers very properly to the necessity of examining for tabes in all cases of sudden paralysis of the vocal cords.—*Journal of Nervous and Mental Disease*, May, 1886.

THE MEDICAL NEWS.

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SATURDAY, JULY 3, 1886.

ARTERIO-VENOUS ANEURISM.

THE occurrence of an aneurismal communication between an artery and a vein has fortunately never been very common, and it is believed to be less common in recent times than it was formerly, because the practice of venesection has fallen into disuse. Of this we cannot be so sure. For, although a large proportion of the aneurisms spoken of by the ancients, of whom Galen was the first to speak distinctly, were probably of this character and caused by venesection, nevertheless a careful study of the best statistics shows that a great many of the recorded cases are to be attributed to other traumatisms, and that not a few have been spontaneous. Thus BRAMANN, in an elaborate paper read before the Fourteenth Congress of German Surgeons, which appears in the *Archiv für klin. Chirurgie*, Bd. xxxiii. Heft 1, has collected the reports of 159 cases, in only 56 of which was venesection the cause, while 52 were attributed to other sorts of incised wounds, 29 to gunshot wounds, 1 to a contused wound, 5 to contusions, 1 to abscess, 1 followed an amputation, 1 followed castration (in an ox), the cause is not stated in 4 cases, and 9 were spontaneous. So, also, Barwell, in the article on "Aneurism," in the *International Encyclopædia of Surgery*, mentions 42 cases of arterio-venous aneurism involving the aorta, in 35 of which the lesion was certainly within the thorax, and this although the first accessible report of an aneurism in this locality, refers to a case published by Syme so recently as 1831.

It is a curious fact that, in comparison with this large number of cases, Bramann's table contains only one case of arterio-venous aneurism of the aorta and iliac vein, and one of the common iliac vessels. On the other hand, it includes 13 cases in which the lesion was in the vessels of the head, 16 in which it involved the carotid artery and the jugular vein, 11 in which it involved the vessels of the axilla, 63 in which the brachial artery and vein were involved, 36 in which the vessels of the thigh were involved, 14 in which the popliteal vessels were involved, 2 in which the vessels of the foot were involved, 1 in which the retinal vessels were involved, and 1 in which the lesion was situated in the stump of the spermatic cord in a castrated ox. This review of the situations in which arterio venous aneurisms have been noted indicates that the abandonment of the practice of phlebotomy cannot be expected to lead to the disappearance of this lesion, and that it is still worth while to study its nature, prognosis, and treatment.

This has been so thoroughly done by Bramann, that his conclusions merit careful appreciation. As to the prognosis of arterio-venous aneurisms, his statistics do not support the common opinion that the form called aneurismal varix (in which there is a direct communication between the artery and the vein) has a favorable prognosis, and that the form called varicose aneurism (in which there is an intermediate sac) has a bad one. The latter opinion he shares, indeed; but he finds that, although it rarely threatens the life of the patient, the aneurismal varix tends to such serious interference with the function of the limbs as to make its prognosis essentially unfavorable. As to the treatment, Bramann does not find much encouragement for the employment of digital or other compression, except as a preparatory measure; he rejects distant ligation, but endorses the method of ligating the vessels immediately above and below the aneurism, and splitting open or excising the sac. The only contraindication to this procedure, he says, is very serious disease of the blood-vessels.

It is usual in the books to warn against including the vein in the ligature applied to an arterio-venous aneurism; but this is probably not so dangerous a procedure as might at first be supposed. It is certainly to be avoided, if possible, in the case of the larger venous trunks, while it is probably of little consequence where the smaller ones are concerned. Finally, what we have said in speaking of the method of Antyllus, as applied to other forms of aneurism, in THE MEDICAL NEWS for May 1, 1886, is true in this connection, namely, that thorough excision is not to be looked upon as involving, at the present time, the dangers to which patients were liable before surgeons were as careful and as skilful in avoiding septic disturbances as they now are. Nor is it to be forgotten that conscientiousness, anatomical knowledge, and manual dexterity are factors of success which cannot be made to appear in tables of statistics.

Almost simultaneously with the appearance of the paper of Bramann, another has been published by Pluyette, of Marseilles, in the *Revue de Chirurgie*, for April 10, 1886, in which the subject is discussed in regard to aneurisms involving the carotid artery and the internal jugular vein, of which he tabulates 16 cases. Combining the statistics contained in this paper with those furnished by Bramann, we have a total of 22 such cases, to which may be added two (or three, if the name "Williamson" given by S. W. Gross, in his paper on "Wounds of the Internal Jugular Vein" in the *American Journal of the Medical Sciences*, for Jan. 1867, be not a misspelling of the name "Wuillaume" given by other authors), making in all 24, or 25, cases of this kind. In most of these cases the treatment was expectant and symptomatic, with the result of recovery or marked improvement. In one case the wound was tamponed and compression applied. This patient recovered. In another case instrumental compression was followed by a cure. In three cases the aneurism was treated by ligation, and only one of the patients recovered. It is noteworthy that all of these operations were done in this country. The first was done by Randolph, in this city; the second was by Prince, in the Army; and the third was done by L. A Stimson, of New York. The latter is the only surgeon who has had a patient to recover after this grave operation.

From this it appears that arterio-venous aneurisms involving the carotid artery and the jugular vein are hardly to be considered amenable to active surgical treatment. The same, it is not necessary to say, is true of such aneurisms within the thorax or abdomen. But when the aneurisms involve the vessels of the extremities, the principles laid down by Bramann may properly be adopted.

MULTIPLE NEURITIS.

From the clinic of Massius, of Liège, Francotte contributes to the *Revue de Médecine*, for May, an important article upon multiple neuritis, a subject which neurologists have recently studied with great care, and, as the paper under consideration shows, with striking results. An affection of the peripheral nerves has been demonstrated in the toxic paralyses, including the alcoholic, in certain cases of tabes, in that curious Japanese disease Beri-Beri, and in the palsies which sometimes follow the specific fevers. There may be widespread involvement of whole groups of nerves, or the affection may be localized; but from the distribution, mode of onset, and symptoms there is not often serious difficulty in excluding a central origin of the affection.

Francotte reports four cases of acute general paralysis, resembling in many respects Landry's ascending paralysis, in two of which the post-mortem examination showed the lesions to be entirely peripheral. The first case was a phthisical patient aged fifty, who for several months complained of feebleness of the legs and lumbar pain, and then, within eight days, became completely paralyzed in the arms and legs, and death took place six days after the onset of the acute symptoms from involvement of the respiratory muscles. In the second case, a woman aged forty-six, the symptoms began with pains in the legs, weakness, with difficulty in walking, and then rapid paralysis with moderate atrophy. The arms became involved, and death took place within a month from the onset of the symptoms. The lesion in these cases was confined to the peripheral nerves, and was of the nature of an atrophic degeneration. The anterior and posterior nerve roots were normal. The third case was in an alcoholic, in whom the paralysis supervened rapidly with pain, became general, and, after an illness of more than a year, the patient was gradually regaining power over the muscles. In the fourth case, that of a woman aged fifty-three, the invasion was rapid, the paralysis of the members was complete, and there was moderate atrophy. After many months recovery gradually took place.

These cases presented many points of resemblance to Landry's acute ascending paralysis, the lesion of which has usually been regarded as spinal, though much doubt exists as to the true nature of the changes. Quite recently Immermann has found acute poliomyelitis in a case with all the symptoms of this affection, while Eisenlohr describes a case which clinically resembled Landry's paralysis, but the lesion was a peripheral polyneuritis. The differential diagnosis between a poliomyelitis anterior and multiple neuritis is certainly difficult in such cases as noted by Francotte. Both affections are characterized by a paralysis beginning in the lower extremities and gradually extending to the arms and trunk, atrophy of moderate grade, and alterations in the electrical contractility. The deep reflexes are abolished, the superficial reflexes are feeble or absent, the cranial nerves are intact, and the sphincters are not involved. These symptoms are common to poliomyelitis and neuritis. The differential signs are: 1st, the more favorable termination in many cases of neuritis; 2d, the parallelism in neuritis between the disturbance of the electrical contractility and the voluntary movements—the presence of the reaction of degeneration, with more or less conservation of voluntary motion, is indicative of a lesion of the anterior horns; 3d, in poliomyelitis the paralysis is localized in certain groups of muscles innervated by different nerves, but associated in the performance of certain movements; 4th, the sensory disturbances, which are marked in most cases of multiple neuritis.

While in typical instances these differential signs may be sufficient to indicate the peripheral or the

central disease, it will frequently be found a matter of no slight difficulty to make a diagnosis. Practitioners will, however, do well to remember that there are cases of multiple neuritis with the clinical picture of an acute ascending paralysis, but with the important difference that they tend, in many instances, to recovery.

THE PULSE IN PREGNANCY, IN LABOR, AND IN CHILDBED.

Dr. Pierre Louge has recently written a monograph entitled *Le Pouls Puerpéral Physiologique*. In it he gives an extension to the word puerperal which is not justified by its etymology, and which is confusing; in this he merely follows the bad example of some eminent French and English writers. He and they include under the term puerperal the state of pregnancy, labor, and lying-in. Such application is permissible so far as labor is concerned, though it would be better to restrict the term to the puerperium, but it certainly is wrong to call the pregnant woman a puerpera. Any one by turning to Andrews' Freund, will find that *puerpera* is defined, first, as a woman in labor or in childbed, then as a lying in woman. It would be quite as correct to include pregnancy in the word puerperium.

But passing from this verbal criticism, let us refer first to the results the author has attained from his examination of the pulse in pregnancy. During the first three months of pregnancy the radial pulse is frequent and regular, the mean frequency being 86. During the second three months the pulse retains the same characters, and becomes fuller and less compressible. During the last three months, the only notable change is that it becomes harder. The pulse of primigravidæ is from 86 to 90, and that of multigravidæ from 80 to 86. The slowest pulse observed was 72, and the most frequent 100.

Jorisenne's "new sign of pregnancy," that is, the invariability of the frequency of the pulse no matter what the position of the subject, lying, sitting, or standing, he has not found true, except occasionally after the fifth month, and at that time other signs of pregnancy generally make the diagnosis easy; beside, this invariability of frequency he has found to occur during menstruation.

The pulse in labor varies during uterine contraction and repose. In the former its frequency increases 15 or 20 beats a minute, and during the latter, it is from 70 to 80.

Soon after the escape of the fœtus, the average frequency of the pulse is 82, the maximum 110, the minimum 62. Contrary to the general statement made by obstetric authorities, during the physiological chill, which in many cases follows the delivery of the placenta, the pulse is increased in frequency, beating from 100 to 120 a minute. This statement needs to be confirmed; we believe that it is exceptional when such increase in frequency occurs.

During the lying-in, the pulse is not in all cases constantly slow. In some patients during the entire period it varies from 72 to 80, never going below the first figure, but sometimes going above the second. In the larger number of cases, however, it oscillates between these limits, but during some of the days, by no means uniform, it momentarily descends to 60 or 58. In still other cases where the pulse was 70 to 84 after the delivery of the placenta, it becomes slow, oscillating between 50 and 46. The secretion of milk is generally established without the form of the pulsation changing, but in many cases there is increased frequency.

Louge has found no connection between the characters of the pulse and uterine regression. While he regards the pulse as furnishing valuable clinical information, he justly judges it inferior in most cases, in this respect, to the temperature—indeed, the thermometer may reveal danger in the lying-in woman whose pulse is not affected.

Louge has taken numerous sphygmographic tracings of the pulse in pregnancy, labor, and in childbed; but these tracings do not prove the increase of vascular tension, generally accepted by obstetricians to be normal in the first two, and by Marey said to occur in the last—an assertion which, though since denied, especially by German observers, ought not to be hastily set aside, considering Marey's well-known accuracy of observation.

OPERATION FOR EXSTROPHY OF THE BLADDER.

Up to the present time the most promising methods of operating for exstrophy of the bladder have been those of Roux and Wood. The former consists in the dissection of a flap from the inner side of the thighs and upper surface of the scrotum, turning this over the mucous surface of the bladder, and making a small opening below, through which the rudiment of the penis is slipped. The free edge of the flap is united to the edge of a suitable incision carried through the skin of the abdomen, and its external raw surface is allowed to heal by granulation, the resulting contraction contributing to the cure of the hernia, which so often accompanies exstrophy. In the method of Wood, a flap is taken from the skin of the abdomen above the exstrophy and turned down. Then a flap is made on each side of the abdomen at the level of the exstrophy, and these are turned over and their edges brought together in the median line. The various edges are then united by sutures, and whatever of the flayed surface of the abdomen cannot be brought together is allowed to heal by granulation. These methods have given as good results as are likely to follow any method resting upon the principle of supplying

Nature's defect, without attempting to correct her error. The latter method, however, must be more likely to succeed, if it can be applied to any case. In the case of exstrophy, we think it may be regarded as an important step in the right direction that Trendelenburg has recently practised, and recommended in the *Centralblatt für Chirurgie*, Dec. 5, 1885, a method which aims to go further toward correcting the congenital defect than does any other.

The most important feature of this method consists in dividing each sacro-iliac synchondrosis, and then pressing together the separated edges of the perpendicular rami of the pubic bone and retaining them in this position with a suitable apparatus. The edges of the mucous membrane are then freshened, the prolapse of the bladder is reduced, the edges of the exstrophy are drawn together with the Lembert suture, and a soft catheter is left in the newly formed cavity to draw off the water through the channel made by the operation. When he suggested this method, Trendelenburg had employed it only once, so far with a satisfactory result. This is enough, however, to recommend it strongly to other surgeons, since it has the merit of being most philosophically conceived.

REVIEWS.

ALPINE WINTER IN ITS MEDICAL ASPECTS, WITH NOTES ON DAVOS PLATZ, WIESEN, ST. MORITZ, AND THE MALOJA. By A. TUCKER WISE, M.D., L.R.C.P., M.R.C.S., etc. Second edition. 8vo. pp. 121. London: J. & A. Churchhill, 1885.

THE present volume, a second edition of the *Alpine Winter Cure*, with changed title, contains a detailed description of the principal winter health-resorts of the Grisons in Switzerland. The intention of the author, as expressed in the preface, to exhibit the remarkable curative and health-giving properties of Alpine climate in their true light, avoiding exaggeration or an omission of those minors details termed "drawbacks," so necessary to be portrayed in the consideration of any foreign or home health-resort has been well carried out, so that the book may be accepted as a safe guide both by patients who are thinking of visiting the Swiss sanitaria and by physicians who are seeking precise information regarding them.

The places described are too distant to be of any advantage to Americans, bu the climatic properties of these resorts which have been extolled as of practical value and application in the treatment of disease, are to be encountered in the vast range of territory on this side of the Atlantic, and whatever advantages are to be derived from the "high altitude cure" can be secured under similar conditions of climate without sending patients across the ocean.

The first chapters of the book describe the places mentioned in the title, as well as the means of access from England. Then follow remarks upon water and soil, atmosphere, therapeutic effects of "cold," on sunlight, barometric pressure, oxygen, ozone, ventilation, and the effects of the climate on the vascularity of the lungs, and on nutrition. Useful practical hints are also given in regard to clothing, diet, exercise, sleep, mode of travelling, etc. The beneficial effects of a pure, cold, dry air are clearly presented. Great stress is laid upon the importance of thorough ventilation and good drainage.

As a large proportion of the time must necessarily be spent in the house, it is essential for the full development of the curative effects of the climate that the air within shall be preserved free from contamination. The want of proper ventilation is one of the principal drawbacks to some of these winter resorts; but this deficiency has been supplied in a notable instance (which it is hoped may be imitated by other hotel proprietors and companies), by the construction on the Maloja plateau of a large Kursaal, fitted with arrangements for the propulsion and extraction of air throughout the building, by which the pure quality of the air breathed within doors is constantly maintained.

The work concludes with notes of meteorological observations, taken at Maloja and other neighboring stations. Dr. Wise's book is interesting and instructive, and can be recommended as a good exposition of what has been termed "the high altitude cure."

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

First Annual Meeting, held at Washington, D. C., June 17 and 18, 1886.

(Specially reported for THE MEDICAL NEWS.)

FRIDAY, JUNE 18TH.—SECOND DAY.

MORNING SESSION.

DR. W. COUNCILMAN, of Baltimore, read a paper entitled

CERTAIN ELEMENTS FOUND IN THE BLOOD OF MALARIAL FEVER.

He said that there were certain living organisms found in the blood of persons suffering from malaria, both in the red corpuscles and serum which may be considered pathognomonic of the disease. They are most abundant during or immediately after a chill. They are more difficult to find in fresh than in dry blood, and even in the latter need a high power of the microscope and immersion lenses to be detected. They are amœboid and more rapid in their movements than the white blood-corpuscles, and sometimes contain pigment granules. They are best stained by fuchsine. Besides, there are hyaline bodies found in the blood after death in fatal cases. During the course of his paper he presented many diagrams illustrative of the microscopic appearances of the organisms he had mentioned, many of which were from original drawings from specimens that he himself had prepared. He went minutely into the researches of European observers, and said that he had been entirely unable to verify those of Labaran, whose results do not tally with those of most other observers. Whether these organisms in the blood are the cause or effect of malaria, it is difficult at present to determine. They are not found, however, in healthy blood nor in other diseases. He had acci-

dentally made two control experiments. Specimens of blood from two cases of supposed malaria were presented to him, in which he had failed to discover these organisms. One of these cases afterward turned out to be pneumonia and the other acute tuberculosis.

DR. WILLIAM OSLER, of Philadelphia, said that he had examined the blood in six cases; three during the intervals of the chills, when the patients were under quinine, and three during the chills. The latter cases confirmed the presence in the corpuscles of the bodies in question. The number of the corpuscles containing them is variable. They show very rapid amœboid movements, and there may be several of them in one corpuscle. They look more like hyaline spaces or vacuoles. There are sometimes solid bodies in these spaces which may be microörganisms. In one case, after twenty-four hours there appeared a body in the blood like those described by the Italian observers. He very much doubted whether these so-called amœboid bodies were microorganisms at all. Their behavior and appearance were far more like vacuoles, which might have resulted from irritation of a microörganism in the blood.

DR. GEORGE M. STERNBERG, U. S. A., agreed that there is very much to be learned as to whether a parasite is or is not the cause of malarial fever. He had seen the blood of malarial patients under the microscope, both in Rome and in Baltimore, and was quite satisfied that they could not be vacuoles, but living bodies, for they can be stained, and how could one stain a vacuole? Beside this, we have the hyaline bodies, the spherical forms of which are also stainable. The occurrence of pigment granules in the supposed vacuoles is also an argument against their being merely vacuoles. He has more confidence in Labaran's researches than has Dr. Councilman, as he considers him a thoroughly competent observer, and his results have been verified by another observer. He would say that, having seen the preparation of the Italian observers, and also those of Dr. Councilman, the latter were equal in every respect, if not superior, to the former.

DR. COUNCILMAN, in reply to Dr. Osler, said that if Dr. Osler had stained his preparations, he would have reached different results, and have seen that what appeared in unstained specimens to be separate bodies was really but one body, connected together by a thin film. Their power of being stained shows them to be not vacuoles, but organisms, as does also the fact that they contain pigment granules. In reply to Dr. Sternberg, he would say that he had no doubt that Labaran had really seen the appearances he described, but he thought his explanation of them was wrong, since even the Italian observers had noticed them only four times.

DR. H. N. LYMAN, of Chicago, then read a paper on

TETANY.

He began his paper by describing a remarkable case of tetany in a young man, a printer, aged twenty-eight. He had been delicate for fourteen years; eight years ago had had a hacking cough, which, after continuing a year, was followed by hemorrhage, which recurred frequently for the next two years, varying in quantity from a drachm to several ounces at a time. For the past five years had been in good health, without cough or hemorrhage. In February, 1884, had a paroxysm of shortness of breath, which lasted an hour. In August of the same year had a nervous attack, which lasted five hours, accompanied by convulsive movements of the forearm and hand. In January, 1885, there were severe dyspnœa, hoarseness, pain in temple, haggard expression of countenance, and convulsive movements. The attacks came on at uncertain intervals; they were generally ushered in with a headache, beginning several hours before. They were accompanied by pain in the chest, pain commencing in the right arm and running to the left arm, and opisthotonos. Sometimes the ends of the fingers are drawn together, and sometimes drawn over to the ulnar side of the hand. There is marked dyspnœa, and the voice is affected and remains husky for a good while after the attack has passed off. There is at no time any loss of consciousness, but temporary loss of memory was noticed after a severe seizure. After one attack the right side was partially paralyzed for a certain time. He occasionally suffered from vomiting, and his general health was declining. In his case general remedies were useless; the bromides had no effect, and reliance had to be placed on hypodermatic injections of morphia, assisted by inhalations of chloroform. Trousseau recognized three forms of tetany: First, where the extremities alone were affected; second, where the face and trunk were affected, accompanied by transient swellings; third, greater diffusion and severity of the spasm. In none was there loss of consciousness. A mild form is often seen in little children with summer diarrhœa, where we have only the convulsive bending of the thumb upon the palm of the hand. The disease is more frequent in females or in males with feminine characteristics. The difference between the forms is simply one of degree. Our knowledge of it may be summed up in the statement that it consists of generalized tonic intermittent convulsions of extremities alone, or of extremities and trunk. Any class of muscles may be affected, but the flexors are those most generally attacked. Headache and disorders of digestion are very common. The pain is often severe, but it may be of a sluggish character, or even absent. The sensitiveness of the skin during the attack is increased, and there is at times swelling of the joints. In most cases there is no dyspnœa; there is increased irritability to electricity.

Death is rare except as a consequence of laryngeal spasm. Post-mortem examinations have thus far failed to reveal any pathological changes distinctive of the disorder.

It is most frequently observed at periods where there is instability of the nervous system. Thus it is most frequent in children at the time of teething, again at puberty, during lactation, in persons of sedentary habits, in those possessing rheumatic diathesis, and anything that causes depression of vital powers.

The differential diagnosis is between organic brain disease, epilepsy, professional cramps, Thomsen's disease, ergotism, and tetanus. Organic brain disease can be excluded by the history of the case, epilepsy by the presence of consciousness, by the limbs being affected first, and in the severer stages by the occurrence of opisthotonos. Tetanus is excluded by the absence of trismus and the fact that there is no wound. Professional disease by the history. Thomsen's disease by the latter being congenital. Ergotism is detected by the diet of the patient, and it is an extremely rare

disease. The mild form requires no special treatment. General measures should be employed and the severe attacks treated by narcotics.

DR. JOHN T. CARPENTER, of Pottsville, Pa., thought the causation of tetany was still obscure. He had noticed its association with septic poisoning. The case that first drew his attention to it was that of a child, two years old, with an abscess on the buttocks which had been caused by a sting. There was a cyst-like swelling over the trochanter which discharged an inodorous pus, and then healed. After this the child became restless and sedatives proved useless. Then the eyes became fixed, looking toward the right side, and there was a tonic spasm on the right side. Afterward the fingers of the left hand were drawn tightly together, the spasm being not intermittent but spastic. The spasms returned at intervals in various parts of the body, at one time the mouth having to be pried open. These symptoms were relieved by chloral and chloroform. The child died at the end of a week. There was at no time any loss of consciousness, the family history was good and all the surroundings hygienic. Septicæmia may produce tetany, as in the septic diarrhœa of children, etc.

DR. J. PEYRE PORCHER, of Charleston, S. C., referred to a case where an attack was excited by an attempt to thread a needle.

DR. A. JACOBI, of New York, said that the cases so rarely end in death that we have little opportunity to examine the pathological changes. Meningitis had been found after death, and probably this is the cause of the attacks. Masturbation may be an exciting cause. He had had a patient of his who had noticed this fact in himself. It may be excited by any kind of sexual excitement. Cases of women who have catalepsy on coitus are recorded.

DR. LYMAN thought that Dr. Jacobi's position in regard to meningitis being the cause of tetany too extreme. There is, generally, hyperæmia of the membranes of the cord, but recent observers say there is no definite lesion. In severe cases there is transient loss of memory after the attacks, as in the one he had related, but this may be due to the effect of the medicines used. Sexual excitement is an important exciting cause.

DR. REGINALD H. FITZ, of Boston, read a paper on

THE INFLAMMATORY DISEASES OF THE APPENDIX CÆCI,

which consisted of a very full and accurate analysis of a great number of cases of perforating appendicitis; a disease which, he said, is most apt to affect healthy adult males. It is characterized by sudden severe pain in the abdomen of a previously healthy individual, and is accompanied by chill and nausea. There is generally a point of tenderness on pressure, usually in the right iliac region, but owing to the changes in the position of the appendix it is by no means constantly in that place. It must be differentiated from perityphlitis and inflammation of the cæcum. There is generally a tumor that can be felt, if not by external manipulation, by the rectal touch. There is frequently severe pain on micturition. The extreme gravity of the disease renders an early diagnosis most important, as the operation of laparotomy should be performed as early in the disease as possible. The third day of the disease is not too early and, if the diagnosis is clear, the operation should be performed earlier. The danger lies in the occurrence of general peritonitis. (The paper will appear in full in *The American Journal of the Medical Sciences* for October.)

DR. WILLIAM PEPPER, of Philadelphia, said that two facts had recently come to his notice in connection with appendicitis that had served to illustrate views he had already held. The first was in the case of an autopsy of a man who died of another disease.

During the autopsy he turned his attention to the appendix, as is his custom. The cæcum was normal. There was a small collapsed portion of the appendix and a portion that was stuffed. On section a concretion was found, evidently of old date. Still there was no evidence of irritation. The second fact was developed in the autopsy of a man who had died of perforating appendicitis. He was an extremely active man of business, tall and slender. Although he had employed no physician, his friends had seen that he was in failing health for some time. He was taken sick on a Monday with pain and vomiting. The temperature at first was only a little above normal; it never rose above 102° F. The heart was irregular but not rapid. There was marked pain over the abdomen, but this yielded and became moderate under the use of opiates. There was moderate distention of the abdomen and rigidity till the fourth day of the disease. There were tenesmus and frequent micturition, the urine being clear and copious in character. There had been several evacuations of the bowels at first. There was an indistinct tumor. Collapse occurred on the fifth and death on the seventh day of the disease. The diagnosis was so obscure that it was not made out till too late for an operation to be performed. The autopsy did not reveal peritonitis, but the peritoneum was reddened. There was a singular angularity between the ascending and transverse colon, on the one side of which there was fulness and on the other collapse of the intestine. There was, however, no true constriction. There was plastic lymph around the brim of the pelvis, which circumscribed the pus in the pelvic cavity. The appendix was dilated, thickened, and partly gangrenous. There was a large perforation but no concretion.

The cases illustrate the fact that the acute disease is an explosion of old catarrhal appendicitis. Previous trouble nearly always exists. It is caused by errors of diet, unhygienic habits, etc. The solid bodies which are found are not due to cherry-stones and substances of that kind, as is often supposed, but are true concretions. The difficulties of diagnosis are great. There may be no distinct tumor. The first result of treatment is often encouraging, and therefore helps to increase our liability to overlook the true character of the disease. Early operation is the only chance for saving the patient.

DR. J. T. DANA, of Portland, Me., had found by observation that in cases of simple uncomplicated appendicitis the symptoms are often latent. He referred to the case of a young and promising physician, an *interne* in the Maine General Hospital. On a Friday morning the young doctor had spent two and a half hours with Dr. Dana going the rounds of the hospital. The next morning he was poorly but only felt badly in a general way. Temperature 102.5° F. during the next two days. Sunday the disease rapidly progressed, and he died the next day, seventy-two hours from the first serious symptom.

The autopsy revealed general peritonitis, perforation of the appendix with two flattened concretions, one within and one outside the appendix. Here was a case where the course of the disease was essentially latent. The only prodromic symptoms were that about three weeks previous he had been "bilious" and had apparently recovered after some simple treatment. On the day before he was taken ill, he had had a sudden sense of faintness. This was probably the time when the perforation had occurred. In conclusion, he thought that it was an error to say, as some did, that pain in the region of Poupart's ligament is specially diagnostic of appendicitis any more than of pericæcal abscess. In the case he had related, the young man, who was extremely intelligent, said he could not be sure whether there was increased pain on pressure in any locality, but thought it was rather more in the right iliac region.

DR. LOOMIS, of New York, considered Dr. Fitz's paper a most valuable one as giving us positive data in regard to points of diagnosis. An early diagnosis is extremely difficult, in fact it is impossible by ordinary methods of diagnosis. He thought the occurrence of a chill or of chilly sensations very valuable. Pain, when present is usually, but not always, localized. Some years ago he had determined, in view of the great importance of an early diagnosis, to examine every patient who presented any symptoms pointing to appendicitis, per rectum under chloroform. In the first case of the kind that next presented itself he tried it. There had been a chill the day before. External examination revealed nothing. The examination by the rectum showed an increase in size where it would be expected. Having made out the diagnosis, he advised an operation. It was refused. The patient died on the third day. He had twice since had opportunities of testing the value of the double method of examination. The difficulty is increased by the fact that the vermiform appendix is often out of place, sometimes toward the median line. Then sometimes one part of it and sometimes another is affected. A certain amount of inflammation is necessary to establish a diagnosis. If perforation occurs, unless the treatment be changed to a surgical one, the patient dies. The operation should be done as soon as perforation can be made out, for the danger lies not in the spreading of the inflammation to the peritoneum, but in the escape into the peritoneal cavity of intestinal gas, through the perforation, thus setting up general and fatal peritonitis.

DR. W. W. JOHNSTON, of Washington, D. C., referred to a case that he had seen years since in consultation. The boy had had symptoms of perityphlitis. There was an abdominal tumor. This subsided and examination showed the presence of fluid in the pleural cavity. He was tapped for this and a quantity of purulent fluid was drawn off. The boy was not benefited by the operation, and death followed from exhaustion. The autopsy showed that the pus had come from a perityphlitic abscess, and had extended upward behind the liver. This organ had been compressed by it and had the appearance of having been grooved. The pus had thence made its way through the diaphragm into the pleural sac. This case happened before abdominal operations were considered as safe as they are now.

DR. E. G. JANEWAY, of New York, related the case of a young man who had been attacked by colicky pains. There was some febrile excitement. A careful examination showed that there was either an intestinal abscess or tuberculosis. As the case progressed there were convulsions and coma, and the symptoms rather pointed to tuberculosis. The autopsy showed the appendix glued to the brim of the pelvis. There had been pressure on the ileocæcal vein, which was thrombosed. There were multiple abscesses in liver, brain, etc.

He divided the cases as follows: 1. When general peritonitis is the first symptom noticed; 2. Where there is localized peritonitis; 3. Where there is inflammation of the cellular tissue, with or without abscess.

In the third variety the diagnosis is difficult. There is sometimes in these cases a great deal of œdema with very little or no pus. These may go on to recovery. In the second variety, an operation is necessary.

The varieties must be distinguished. The early symptoms are very much the same. In a certain proportion of cases the pain, though severe, is not localized. There is pain on micturition, and this is sometimes so severe as to simulate the passage of a renal calculus. There is generally some point of deep-seated infiltration and tenderness. He spoke of a case where a large abscess had discharged into the cæcum, resulting in recovery but followed by prolapse.

DR. FITZ, in concluding the discussion, said that incipient appendicitis was so obscure that he had only begun his consideration of the subject with perforation. He agreed with most of what had been said. There are local pain, slight fever, appearance of tumor, a sensitive spot. Palpation must be employed over seat of pain.

The Association then went into

EXECUTIVE SESSION.

DR. HOSMER A. JOHNSON, Chairman of Committee on

PERMANENT ORGANIZATION,

reported that the committee had concluded to recommend the election of the temporary officers to their respective places as permanent officers for the present session. They made the following nominations:

OFFICERS FOR THE ENSUING YEAR,

President.—Dr. S. Weir Mitchell, of Philadelphia.

Vice-Presidents.—Drs. Francis Minot, of Boston, and R. Palmer Howard, of Montreal.

Secretary.—Dr. George L. Peabody, of New York.

Recorder.—Dr. G. T. Whittaker, of Cincinnati.

Treasurer.—Dr. W. W. Johnston, of Washington.

Council.—Drs. Wm. F. Draper, of New York; Robert T. Edes, of Boston; H. M. Lyman, of Chicago; Samuel C. Busey, of Washington; Fred. C. Shattuck, of Boston; Wm. Osler, of Philadelphia; and W. A. Welch, of Baltimore.

DR. WILLIAM PEPPER moved that a committee be appointed to confer with similar committees of other special societies on the advisability of forming an association of all of them under the name of

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Adopted.

The President appointed Drs. Wm. Pepper, R. T. Edes, R. Palmer Howard, J. T. Whittaker, Francis Delafield.

AFTERNOON SESSION.

DR. WILLIAM M. POLK, of New York, read a paper entitled

PERIUTERINE INFLAMMATION.

There are observed in certain cases of uterine disease certain inflammatory masses at the roof, sides, or back of the vagina (very seldom in front), which have frequently been described wrongly under the head of pelvic cellulitis. He proceeded to give a review of the progress of medical opinion on the subject down to the present time. He considered that it is now pretty evident that the principal factor in periuterine inflammation is tubal disease.

What are the causes of these masses? 1. They are the result of salpingitis plus peritonitis. They consist of the tubes, ovaries, connective tissue, etc. 2. Inflammatory masses do not originate from uterus or vagina except after abortion or operation. The starting-point of the process is found, however, in the vagina and uterus. How can the disease extend by the veins, lymphatics, or more directly by the tubes? In septicæmia the process extends by all these paths. That in the case of periuterine inflammation it should extend by way of the tubes is in accordance with analogy. Vaginitis has a tendency to extend to the uterus; why not also to the tubes? The spermatozoa take this course. In the male the course of inflammation and its spread are definite, but how rare it is to find that it causes phlebitis or cellulitis, although it extend as far as the kidney. The inflammation in the female extends in the same way. These arguments, however, being theoretical would not be sufficient alone. In autopsies we find further confirmation. Here, except in cases of septicæmia, cellulitis as secondary to inflammation of the tube is rare. The evidence of the post-mortem room is in favor of the masses in question being the result of salpingitis. It is possible to trace the inflammation along the mucous tracts. As a rule, no thickening of the ligaments is observed, although their appearance might give rise to the idea that there was, owing to a cicatricial condition of the peritoneal covering. There is sometimes found also an enlarged gland. He had made an analysis of fifteen cases of apparent pelvic cellulitis which the post-mortem showed were not this but salpingitis. Owing to the shortness of the time, he only read three of the cases as illustrating his point. The idea that abscess rarely originates in the pelvic cavity is an erroneous one. The etiology of these masses is to be found in endometritis, salpingitis, etc. It is more apt to occur in those who have borne children than in those who have not. Death is a very exceptional result. Where there is septicæmia, or where the system is very much run down, the prognosis is grave. But even abscess may be followed by recovery. The large majority of those affected live. The majority not only live, but recover and bear children. The cure is indicated by disappearance of the masses. When the masses remain, cure is difficult, and when the uterus is movable the disease may be set up again. Sterility in such cases is not uncommon. Whenever there is septicæmia, cellulitis may be present, but still it is not the cause of the masses. In regard to the advisability of removing the tubes, Dr. Polk said that we must bear in mind the difference between the acute and chronic cases. As recovery is very frequent we should be careful about operating. In acute cases surgical means should be resorted to only to cut short general peritonitis. In chronic cases it should be looked upon as a *dernier ressort*. It may sometimes be avoided by tearing up the tubes from the adhesions.

DR. FITZ spoke in confirmation of Dr. Polk's paper. The condition in question was unknown till recently. After the age of fifty it is rare. He thought that cellulitis might be set up by extension.

DR. WM. H. WELCH, of Baltimore, read a paper entitled

AN EXPERIMENTAL STUDY OF GLOMERULO-NEPHRITIS.

In his paper he confined himself to the consideration of the alterations of the Malpighian bodies, beginning with an account of the literature of the subject since the time of Beer, in 1859. This showed, as he pointed out, that there is a great diversity of opinion not only as to the interpretation of the facts observed, but also of the facts themselves.

The following questions have not yet received full and satisfactory answers.

1. What is the origin of the cells which often, in nephritis, occupy the space between the glomerulus and the capsule of Bowman?

2. Does emigration of white blood-corpuscles and diapedesis of red corpuscles take place through the glomerular capillaries?

3. What is the origin of the cells which in many cases are found in large number in the interior of the glomerular capillaries?

4. What *rôle* as to frequency and intensity do changes in the glomeruli play in the pathology of Bright's disease?

With a view of throwing light upon some of these doubtful points by experiments upon animals, he had made a study of nephritis produced by acute cantharidin poisoning with especial reference to the alteration produced in the Malpighian bodies. A description of the structure of the normal glomerulus was then given. His experiments, which are not yet completed, were made upon white rats and rabbits. He used a concentrated solution of cantharidin in acetic ether. He injected subcutaneously in rabbits usually from one-half to one centigramme of cantharidin, and in rats from one to three milligrammes. When a number of injections were made on successive days, smaller doses were used. After the injection of a toxic dose the urine becomes diminished. It contains albumen, hyaline casts, and a large number of leucocytes and red blood-corpuscles. The kidneys appear swollen, congested, and more succulent than normal. In the rat's kidney there are here and there foci of infiltration, with small, round cells, doubtless emigrated white corpuscles. They are most common around the veins at the base of the pyramid, though they are not constantly present. The epithelium of the convoluted tubes is in some places swollen, and the inner parts often broken off, appearing as a granular mass in the lumen of the tubes. At times a number of the cells are devoid of epithelium, and are then pale and homogeneous, and have apparently undergone coagulation-necrosis. The tubes are wider than normal.

In the Malpighian bodies there is a wide space be-

tween the glomerulus and Bowman's capsule partly or wholly filled with cells and a finely granular material. These cells are generally polyhedral and much larger than white blood-corpuscles, they have granular protoplasm and are possessed of oval, vesicular nuclei and are arranged frequently as a concentric mass around the glomerulus. These appearances are similar to those seen in glomerulo-nephritis in man. The explanation usually given for them in the human subject is not applicable here. The cells in this case are not only white blood-corpuscles, but they may be and are derived also from the epithelium of the convoluted tubes with which they are identical in appearance. This is certainly the case with the cantharidin-nephritis in man. The presence of the cells in the capsular space is probably to be explained by their being mechanically pushed from the tube thither. The processes under cantharidin in the rabbit's kidney are, speaking generally, similar to those observed in the rats. He was not inclined to generalize from these researches as to the occurrence in man of this peculiar and hitherto undescribed process, though the possibility that a certain number of cells in the capsular space may be from the epithelium of the convoluted tubes is to be considered.

In his experiments he found that the glomeruli contained an increased number of small, darkly staining nuclei, readily distinguished from the larger and paler nuclei of the epithelium. The former nuclei belong to cells which are either free in the lumen or attached to the inner surface of the capillaries. Some appear to be white corpuscles and others endothelial cells. There is not such a marked accumulation of new intracapillary cells as is observable in the human subject.

Swelling of the endothelium and accumulation of cells in the glomerular capillaries appear to be nearly constant lesions in acute diffuse nephritis of scarlatina. He described the appearance of the kidneys in a man who had had malaria and albuminuria with casts. The chief abnormality found here was that the glomerular capillaries, almost without exception, contained an increased number of cells. In most instances they were widely dilated and filled with variously shaped cells. This was discovered only after very carefully made sections. Important as the changes in the glomerular capillaries are, we are not justified in asserting, as was done by Langhaus, "that these changes constitute the primary and essential lesion of Bright's disease." They are coördinate with the other lesions of diffuse nephritis, and, with our present knowledge, nothing is gained by saying that one of these lesions is primary and essential, and another is secondary and unimportant.

As regards nomenclature, Dr. Welch suggested that, instead of the one term glomerulo-nephritis, the form of disease characterized by an accumulation of cells between the glomerulus and Bowman's capsule be designated desquamative glomerulitis, and that characterized by accumulation of cells or other changes in the interior of the capillaries be called intracapillary glomerulitis; though the question as to whether all these changes are inflammatory is still unsettled.

DR. HENRY F. FORMAD, of Philadelphia, said that in 1881 he had made a series of experiments on rabbits somewhat similar to Dr. Welch's. The changes in the glomeruli, however, were not so carefully noted, but there were cellular formations in the capsules. Still, notwithstanding the use of cantharidin, beyond hyperæmia the changes were remarkably slight. There is a condition of the kidney in man where there is albumen, the appearance of casts and fatty degeneration of the epithelium with atrophy, but with remarkably limited effect in the kidney. It is very common, and may be described as a primary metamorphosis.

DR. HOSMER JOHNSON, of Chicago, agreed that there are many cases indicating grave kidney disease, where the post-mortem does not seem to show sufficient changes in the kidney to account for the disease. He thought Dr. Welch's explanation probably satisfactory.

DR. FRANCIS DELAFIELD, of New York, said that he had never examined cases of nephritis except in man. He thought it a pity that the condition should be spoken of as a special form of glomerulo-nephritus, as changes in the glomeruli are so common in all forms of Bright's disease. This is the case in the simple form, also in cases where there is swelling of the capsular epithelium. Some of these remind one of those just described by Dr. Welch, but they do not advance to the same degree. He had never seen a case where cells had been pushed out of the convoluted tubes. Again we have changes in the capillaries, thickening of their walls, and presence of cells in their vessels. This is very common. Or we may have exudation between the tufts and capsule or excessive growth of the capsular cells, compressing the tuft. This is of the greatest importance clinically, as it is a form of acute Bright's disease which is likely to continue. Even if it be checked, it will sooner or later progress; but even to this form he would not apply the term glomerulo-nephritis or glomerulitis. If there be a form where the glomeruli alone are involved, then such a term would be proper.

DR. A. JACOBI, of New York, asked, Does Dr. Welch mean to say that what he describes is the preparatory stage, and one which will recover? Cases of cantharides poisoning have been reported, resulting in general interstitial inflammation in kidneys and other organs. Was this because too much had been taken?

DR. WELCH said that two Italian observers have found that cantharides administered by the stomach does not cause nephritis, but administered hypodermatically it does. He did not mean to be understood, in using the term glomerulitis, to refer to a distinct disease of the kidney. The term is simply a convenient one to include all cases not degenerative. As to the permanency of the changes, the kind he described have nothing irremediable about them. It is a mistake to try to find out what are the starting-points in Bright's disease, as we cannot discover the relation of the changes to each other. He thought too much emphasis had been laid upon desquamation, and the presence of some swelling in the intercapsular space. The changes in the capillary walls are probably not answerable for albuminuria.

DR. WILLIAM OSLER, of Philadelphia, read a paper entitled

THE BICUSPID CONDITION OF THE SEMILUNAR VALVES.

This condition may be said to exist when two of the three valves are more or less fused. It is a well-recognized abnormality, though not of very common occurrence, and is far more frequently found affecting the aortic than the pulmonary valves. Clinically the cases where the aorta is affected are apt to die suddenly;

they will generally present the symptoms and signs of chronic aortic insufficiency, with hypertrophy of the left ventricle. With the exception of one case where it was noted in an eight months fœtus, the ages at which it has been observed have been between twenty and sixty. This is in marked contrast to those cases in which the pulmonary valves are affected, and which generally die in very early life.

The cause is generally to be traced to intrauterine life and not to the occurrence of endocarditis, but to a want of development.

Dr. George Sternberg, U. S. A., read a paper on

THE BACILLUS OF TYPHOID FEVER,

which will appear in an early number of The Medical News.

Dr. E. C. Seguin, of New York, read a paper entitled

A CLINICAL REPORT OF EIGHT CASES OF HEMIANOPSIA,

which was illustrated by specimens. He spoke of nine cases, five of which were on the right side and four on the left. Three of these he considered by themselves. These patients exhibited coincidently signs of hemiparesis. One showed a post-paralytic chorea, two had alexia or sensory aphasia, in which the patient is unable to understand writing or printing, or if he can, it is only by spelling out the words letter by letter. The majority of cases have no alexia, and there seems to be no essential connection between them. In the remaining six cases, hemianopsia was the only symptom present. In one case aphasia appeared suddenly, but this was entirely distinct from the hemianopsia. In two cases there was progressive weakness of the leg. This was *probably* from a tumor in the cerebrum. He showed by a diagram where the centre for the leg in the brain is. This being the case, a paraplegia of cerebral origin is a possible thing. One case showed neuro-retinitis on ophthalmoscopic examination after the hemianopsia had developed.

He had noted a new symptom in two cases. This was the subjective appearance of hallucinatory images in the half-field before the hemianopsia came on. This is analogous to the changes in the motor centres. There is first irritation and then destruction.

In regard to the pathology, one case was syphilitic, presenting evidence of arteritis with softening on closure of the lumen of the vessel. Two cases were non-specific; two cases had hemorrhage; in two the tissues of the cerebrum were involved; one case had hemorrhage of the cerebral artery. Embolism of the occipital artery is very frequent. In one case there were glaucoma and irregular hemianopsia during the course of the disease. After iridectomy the typical hemianopsia appeared, but he was inclined to consider that the two had no connection with each other. Ophthalmologists have noted that whether the hemianopsia be on the right or left side the point of fixation always escapes. This means that the *macula lutea* is not involved, and this in turn has an important bearing on the course of the fibres supplying the optic nerve, and seems to show that the macula is applied from both sides.

Dr. H. F. Formad, of Philadelphia, gave a demonstration of some

PECULIARITIES OF CYANOTIC INDURATION OF THE KIDNEY.

The peculiarity is one of shape. Thôse who are confirmed drunkards, and die in the debauch, have what he is accustomed to call the *pig-backed* kidney. It is deep red, and is one-third to one-half its normal size; presents a sausage-like appearance; it is elongated and round, and not so hard as when the cyanotic induration is due to chronic heart disease. In his demonstration he excluded all cases where the condition could be traced to cardiac or other organic lesions, and confined himself to the condition observed in those who died in a debauch. Cyanotic induration is produced by any cause interfering with the return of blood. It is produced very easily in the kidneys, since the kidneys lie very near the vena cava, and the renal veins have no valves. When a sudden afflux of blood occurs in an organ it tends to become round, and the kidneys seem to have some erectile power. This change in shape is shown by artificial distention. In cases of heart disease the action is very much more gradual, and the changes being slow, the normal shape of the organ is preserved.

He has had very extensive opportunities for conducting post-mortems in these cases, as all cases of sudden death that occur in Philadelphia are examined by him. In 250 cases of death from pure alcoholism the pig-backed kidney was always present; enlarged liver was observed 120 times; simple cardiac hypertrophy 90 times; cystitis 170 times; cirrhosis of the liver, with contraction, only 6 times. This last is extremely remarkable, in view of the fact that it is usually considered to be one of the most usual lesions in drunkards.

As the time far adjournment had now arrived, the following papers were read by title: *Notes of a Case of Hepatico-bronchial Fistula*, by Dr. J. E. Graham, of Toronto; *Pancreatic Hemorrhage as a Cause of Sudden Death*, by W. F. Draper, M.D., of Boston; and *Pernicious Anæmia*, by Dr. A. Jacobi, of New York.

After votes of thanks to the authorities of the Army Medical Department for the use of the room, to the profession of Washington for their hospitality, and to the officers of the Association for their efficient services, the Association adjourned.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, May 5, 1886.

The President, S. Weir Mitchell, M.D., in the Chair.

Dr. J. Solis Cohen read a paper on

THREE CASES OF PRESSURE UPON THE RECURRENT LARYNGEAL NERVE FROM DIFFERENT CAUSES, WITH FIXATION OF THE LEFT VOCAL BAND IN THE PHONATORY POSITION.

Dr. Cohen referred to the uncertainty surrounding the central innervation of the laryngeal muscles for their antagonistic function of opening and closing the glottis. Although if both of the two doors that admit the breath of life remain closed, life becomes extinct in at most two minutes, yet if only one of them is shut the interference with respiration may be too slight to attract attention. When a vocal band stands at rest in the position normally occupied during phonation only, the

question arises whether that fixed position is due to tonic spasm of the muscles which close the glottis on that side, or whether it is the result of paralysis of the muscles which hold the glottis open. The view generally entertained and endorsed by laryngolgists is the one promulgated by Dr. Felix Seman, of London, that organic disease of the roots or trunks of the motor nerves of the larynx is likely to become earliest and sometimes exclusively manifested in paralysis of the posterior cricoarytenoideus, the dilating muscle. The lecturer was more inclined to accord with the opposite opinion announced by Dr. Herman Krause, of Berlin, based on clinical observation, on neural analogy, and on physiological experiment. In its briefest expression this view maintains that, in analogy with neurotic manifestations in other portions of the body, organic irritation of the recurrent laryngeal nerve produces spasm of all the muscles supplied by its fibres, both those which preside over the patency of the chink of the glottis for respiratory purposes, and those which preside over the approximation of its edges for purposes of phonation, cough, and expulsion of foreign material: but that, inasmuch as the number and mass of muscle and nerve fibres preponderate in the domain for closure, the equilibrium maintained by the respiratory centre under normal conditions is overpowered, so that the spasm remains manifest in the closing phase only, despite the coexistent spasm of the weaker dilator muscle. The opinion held, then, is that the phenomenon of permanent fixation is due to the overpowering contracture or tonic spasm of constricting muscles of the larynx, and not to a paralysis of a dilating one. The atrophy of the dilating muscle is attributed to its mechanical immobily, and not to its paralytic immobility. On the other hand, those who believe in primary paralysis of the dilator muscle consider this spasm to be a secondary contracture, and not a primary one.

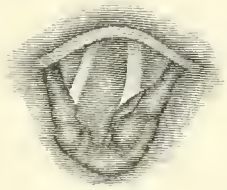
Aneurism of the arch of the aorta and of the left subclavian artery with fixation—spastic immobility?—of the left vocal band in the phonatory position.—Mr. X. Y. Z., æt. forty-four, formerly a corporal of artillery, and since June, 1865, a machinist, applied November 15, 1885, at the Philadelphia Polyclinic on account of great dyspnœa said to have been of but six months' duration, although shortness of breath had existed for fully five years, eventually accompanied with frequent cough, and expectoration of frothy white mucus. Coughing produced great pain within the left side of the thorax. Pains in other regions were referred to.

Dizziness in walking had been produced for some months, compelling interruptions for rest. Dizziness was nearly as bad on standing. About five years before, the voice began to undergo change. It was now weak and diphthonic, the higher pitched tone being metallically shrill and squeaky. Respiration was embarrassed spasmodically on exertion, but during rest in the sitting position was fairly quiet at a rate of from twenty to twenty-four per minute. The patient felt much better in the open air than in a room. The pulse was about 86 per minute at the right wrist and over a pulsatile, expansile tumor below the clavicle and second rib of the left side, but it was almost imperceptible and apparently irregularly intermittent at the left wrist. The pupils were equally dilated.

There was a history of inflammatory rheumatism in 1866, with subsequent histories of intermittent fever and of the primary lesion of syphilis. Appetite and digestion were reported good, with irregularly constipated habit. Emaciation was steadily progressive.

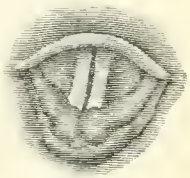
Physical exploration of the thorax revealed aneurism of the arch of the aorta and of the left subclavian artery. Laryngoscopic inspection revealed tense immobility of the left vocal band in the phonatory position—or rather, with its posterior extremity, a fraction of a line beyond the middle of the glottis, with slightly concave or semielliptic outline of the immovable vocal band (Fig. 1) representing the left half of the ellipse normally produced by the simultaneous action of the two sides in phonation (Fig. 2). The aneurism of the aorta

Fig. 1



In respiration.

Fig. 2.



In phonation.

compressing the inferior laryngeal nerve as it winds around the arch of that vessel in its recurrent course to the larynx, explained the cause of the fixed position of the vocal band. This fixed position was attributed to preponderating spasm of the group of adductor muscles rather than to paralysis of the single abductor, because of the shrillness of the voice, and the presence of an over-tense vocal band to account for that shrillness or increase of pitch; complete tension requiring contraction and not relaxation of the posterior cricoarytenoid muscle. The patient, who had passed out of his hands, died suddenly while walking in a garden on April 12th, but the manner of death is unknown, whether by spasm of the glottis or by rupture of the aneurism, probably by the latter. The physician summoned after death suspected disease of the heart.

A second patient with a similar permanent fixture of his left vocal band in the phonatory position was exhibited, his phonic tone not being shrill as in the other case, but apparently normal; as is usual in these instances, the question as to contracture or paralysis could find no answer in his voice. There was no aneurism detectable in the chest of this man; but that there may be aneurism pressing posteriorly on the recurrent nerve without physical evidences on auscultation has been proved not only by a post-mortem examination in a case of the lecturer's[1] in which such a correct diagnosis had been made by exclusion in a man with a similar laryngeal defect; but by similar post-mortem discoveries by others. In this case, however, the fixture was not attributed to aneurism, but to another source of irritation, while the inference of contracture was based upon the occasional presence of tremors and even of spasms in the right vocal band, so that at moments the complete picture of the bilateral malady is manifest for a few seconds.

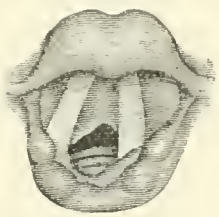
Some eight or more years ago Dr. Cohen reported a

[1] Amer. Journ. Med. Sci., July, 1883, p. 89.

case of permanent bilateral involvement of this kind preceded by the unilateral lesion. This patient died a few weeks ago, and the structures implicated, muscular and nervous, are undergoing study by Prof. Osler. It seemed probable that the case presented might become a similar instance of bilateral lesion following a unilateral one.

Fixation of left vocal band in the phonatory position, with tracheal constriction from enlarged thyroid body, and occasional spasm of the mobile vocal band of the right side.—X. Y. Z., æt. forty-four, an old private of three years military service; of late years a longshoreman, accustomed to heavy work, lifting large bales of merchandise, applied to the Polyclinic with great dyspnœa and marked tracheal stridor, chiefly inspiratory; with a history of continuous difficulty of breathing preventing sleep, and frequent suffocative attacks of spasm of the glottis especially at night. About one year before, while working actively in a place much exposed to draught, he began to get very hoarse so that he could barely whisper, but he had no fever and no embarrassment in respiration. Cough and expectoration ensued. In about a month his voice began to improve and became gradually restored, but cough and expectoration continued. About August last breathing became embarrassed, became associated with wheezing, and attended with a sense of weight at the epigastrium. This embarrassment in respiration steadily augmented. Just before applying at the Polyclinic, dysphagia became added to his symptoms, and he almost choked when taking food whether solids or liquids. The great stridor made laryngoscopic inspection the first step in investigation. The left vocal band was found fixed in the phonatory position. (Fig. 3.) Both bands were congested and thickened. The right band and other laryn-

Fig. 3.



Fixation of left vocal band in phonatory position, with involution of tracheal wall of same side.

geal structures moved freely and normally in respiration and phonation, and on phonation even the supra-arytenoid cartilage of the affected side became bent inward and forward. The great stridor could not be accounted for by the encroachments upon the open glottis, for one-half was entirely normal in proportions and presented ample room for free respiration. Pressure on the trachea was, therefore, suspected, and further inspection revealed an involution of the tracheal wall on the left side and extending anteriorly. External examination of the neck revealed an indurated enlargement of the left side of the thyroid gland of the size of a walnut. The inference following was, that the left lobe of the thyroid body dipped down so as to press both upon the trachea and upon the recurrent nerve; hence the immobile condition of the left vocal band, and the tracheal stridor. Tendon reflexes were normal. There was slight bilateral relaxation of the palate which did not respond to titillation. Physical examination of the chest revealed small scattered bilateral areas of bronchial breathing most marked along the course of the primitive bronchi. These were attributed to the interruption of the normal tracheal sounds by the involution of the tube acting as a tumor or foreign body. Emphysema existed at the upper part of the left lung, most marked behind. The cardiac impulse was felt at the epigastrium. There was some insufficiency of the mitral valve. No evidence of aneurism could be elicited.

The family and personal history were negative. Nevertheless twenty grain doses of potassium iodide were given three times a day, with marked benefit from the very first; and within a few days dysphagia ceased, tracheal stridor ceased, dyspnœa disappeared except on exertion, and the thyroid gland underwent resolution until now its enlargement is hardly patent to inspection though distinctly perceptible to palpation, especially during movements of deglutition. Involution of the tracheal wall can still be made out on laryngoscopy; the left vocal band is still fixed in the middle line, but the mobility of the supra-arytenoid cartilage has apparently ceased. Within a fortnight or so it was noticed on several occasions that, under the excitement of instructions to phonate strongly or rapidly, or to make deep and rapid inspirations, the hitherto unimpaired vocal band of the right side is sometimes tremulously inobedient to the will, and that once in a while it occupies the middle line for a few seconds despite the strongest efforts at inspiration, which, in fact, increase the difficulty, and produce that characteristic stridor in inspiration which accompanies the bilateral condition under consideration. Certainly the temporary closure of the glottis is at present due to clonic spasm of the adductors of the hitherto sound side of the larynx. Whether this participation of the sound side is indicative of the encroachment of a central lesion which has hitherto been unilateral, or whether it is indicative of reflex motor disturbance from involvement of the sensory fibres of the pneumogastric of the side primarily affected, a local lesion first affecting the recurrent fibres only and subsequently the other fibres of the pneumogastric, is a question for future study.

A third instance of fixation of the left vocal band, due to another cause, recently came under notice accidentally, as indeed have several instances before.

Fixation of left vocal band in phonatory position, following left-sided pleuritic effusion with displacement of the heart—A young gentleman, nineteen years of age, was sent to the lecturer recently for inquiry as to the cause of a hoarseness of several weeks' duration. In addition to evidences of a passing laryngitis, which had produced the hoarseness, the left vocal band was fixed in the middle line as in the other cases narrated. The hoarseness had passed away, voice was nearly normal, both the vocal bands remained immobile in the median line. There was a history of left-sided pleurisy three years ago with effusion enough to push the heart to the right side. The region of the heart was rather prominent, there was slight dulness just below the upper third of the sternum, the sound of the tricuspid valve was loudest just to the right of the sternum, and the other physical signs were of negative value. The theory at present entertained, for the case had not been thoroughly studied

out, was that the displacement of the heart to the right and its probable hypertrophy had caused a strain upon the recurrent nerve by dragging the arch of the aorta forward, downward, and to the right, which had either developed a neuritis resulting in neuropathic contracture, or some adhesions of connective tissue or enlarged bronchial glands. Pressure by such swollen glands might induce such a neuritis. In either instance the physical condition of the larynx had nothing to do with the cause of the hoarseness on account of which the interior of the organ was originally inspected.

This case illustrates the fact that when one vocal band is fixed in the middle line, the condition, however serious may be the lesion which has occasioned it, may remain undetected indefinitely. It does not interfere with respiration, for half a glottis is amply sufficient for that function. It does not impair the voice, for the immobile band is in the very best position for good phonation.

Given a vocal band fixed in the middle line in consequence of irritation upon the recurrent nerve, would this be due to spasmodic contracture of the entire group of muscles, or to simple overaction of the adductor portion of that group, because the abductor has become paralyzed?

That tremor precedes spasm is seen in the second case narrated; analogically to what has been witnessed in experiments upon the recurrent nerves, as performed by Krause and others, when fibrillary tremors precede the well-known traction of the vocal band to the middle line.

The great office of the laryngeal nerves is to secure space for respiration, their auxiliary office is to provide means for phonation and cough. While it seems, *à priori*, suitable that the importance of the dilators of the glottis should have caused them to be invested with special immunity, rather than with special vulnerability, it may be argued, on the other hand, that as the main office of the motor laryngeal nerves is to maintain the patency of the glottis for breathing purposes, serious injury to those nerves would compromise the integrity of that office. The reply to this argument would be, that an injury completely destructive of the conductivity of the nerve, leaves the vocal band immobile in a position which does not interfere with the respiratory function.

The speaker then referred to a hypothetical explanation for these apparent contradictions based upon general physiological principles offered by his brother, Dr. Solomon Solis Cohen. It adopts, in a modified form, the as yet undemonstrated theory of the existence of a cortical motor centre for the larynx, and assumes that the respiratory (abductor) fibres of the recurrent nerve offer less resistance to the passage of nerve-currents than do the phonatory (adductor) fibres; an assumption made highly probable by the ascertained laws of nerve-resistance. The direct energization of a muscle of a limb, it is well known, proceeds via an anterior nerve-root from the motor cells of the gray matter of the spinal cord—which may be compared to the local battery in a telegraph line—while the impulse which liberates this energy in obedience to the will, proceeds from a centre for voluntary motion in the cerebral cortex—the line battery. It may also be set free by so-called reflex action, under the stimulus conveyed from the periphery by an afferent nerve; the peripheral impression becoming the line battery. Applying these facts and hypotheses to the larynx, the following conclusions are drawn. The local battery for laryngeal motion is the nucleus of the spinal accessory nerve in the fourth ventricle. From this proceed two sets of fibres, one, of low resistance, to the dilator muscles, another, of higher resistance, to the constrictor muscles. The ordinary dilatation of the glottis for respiration, which is accomplished by a partial contraction of the dilator muscles, is an automatic function of organic life, under the control of the respiratory centre in the medulla, and takes place with the liberation of the minimum amount of energy by the central motor cells. The respiratory impulses continuously traverse the recurrent nerve, and all other impulses become superimposed upon them. The effect of a first additional increment of nerve-force, which may be set free under psychic impulse from the cortex, is to stimulate further the dilator muscles, opening the glottis wider or to its full extent, as in forced inspiration. More intense psychic stimulation, awakening sufficient energy to overcome the resistance of the adductor fibres of the recurrent nerve, elicits in addition to the continuing action of the dilator muscles (which is necessary to complete the tension of the vocal bands posteriorly) the response of the constricting muscles, and the vocal bands are brought into position for phonation. Reflex stimulation of the centre by an afferent nerve, excites the coughing action of the constricting muscles.

If this explanation of the normal action of the vocal bands be correct, the positions they assume under pathological conditions become easily explicable.

An irritative lesion of the nerve tract, or of the centre, or such lesion of the cortex or of the (hypothetical) cortico-medullar tract as should remove psychic control from nuclear cells continuing to generate nervous force, would produce according to its degree, at one extreme, increased action of the dilating muscle (position of forced inspiration, extreme abduction), or at the other extreme, spasm of all the muscles, bringing the vocal bands into the phonatory position (complete adduction), and between these extremes would be the various manifestations of tremor, spasmodic cough, and even equilibrium (non-paralytic) in the cadaveric position.

In depressive lesions, when the nervous current is too weak to overcome the resistance of the adductor nerve fibres—as when the will fails in hysteria—or when there is partial interference with the generation or transmission of nerve-currents, as in some cases of disease or injury of the nerve tract, the constricting muscles would receive little or no influence, the dilating muscles would continue to act, and there would be presented the well-known picture of adductor paralysis, best exhibited in hysterical aphonia. In hysteria, perfect cough is still possible under reflex stimulation. In organic diseases presenting the same picture, cough should be impaired, but not absent, as organic disease of this nature is not likely to be bilateral.

Destructive lesions of tract or nucleus, if complete, cut off entirely the nervous stimulation; all the muscles fail to act; and the vocal bands are left in the cadaveric position (paralytic, complete relaxation).

This hypothesis, for the sake of simplicity, omits to take account of normal or pathological inhibition of respiratory acts, or of a possible complication offered by the unknown relations of the sympathetic system with the laryngeal function of respiration.

ONTARIO MEDICAL ASSOCIATION.

Sixth Annual Meeting, held at Toronto, June 2 and 3, 1886.

(Specially reported for THE MEDICAL NEWS.)

WEDNESDAY, JUNE 2.—FIRST DAY.

THE sixth annual meeting of this Association was convened in the public hall of the Education Department at Toronto, at 10 A.M., THE PRESIDENT, G. A. LYE, M.D., of Chatham, being in the Chair.

Over one hundred and fifty members from different parts of the Province were present, besides several guests from other Provinces and the United States. The meeting was the most successful ever held by the Association. The morning session was spent in routine business.

AFTERNOON SESSION.

RECEPTION OF GUESTS.

THE PRESIDENT expressed the pleasure it gave them to welcome their guests, among whom were several from across the border; but true medicine is a brotherhood which knows no dividing lines.

The following guests were then introduced: Dr. E. M. Moore, of Rochester, President of New York State Medical Association; Drs. Cronyn and Tremaine, of Buffalo; Dr. Manton, of Detroit; and Drs. Trenholme, Ross, and Rodgers, of Montreal.

DR. POWELL, of Toronto, moved that the President be requested to convey, by telegraph, an expression of the fraternal

GREETINGS TO THE OHIO STATE MEDICAL SOCIETY,

now in session at Akron.

THE PRESIDENT then delivered his

ANNUAL ADDRESS.

After returning thanks for the honor conferred upon him by his election to the Chair, he pointed out the advantages to be derived by the profession from such an association as this. It is a source of much pleasure and gratification that our system of medical education is already so complete and that our graduates are second to none. There is, however, abundance of time and ability to reach still higher grades, and it is a matter of deep regret that the colleges graduate in three terms, and that our anomalous medical relations with the Mother Country oblige our council to accept three years. This matter might engage the attention of the Association. It is the duty of that Association to watch well the course of medical education, to suggest improvements and to let them be known for the guidance of those in authority.

DRS. GIBSON and YONKER, of Belleville, then showed two patients suffering from

HÆMATURIA

for a prolonged period. The most thorough investigation had failed to discover the cause in either case. Treatment on general principles had been without effect.

DR. ATHERTON, of Toronto, then opened the discussion on

FRACTURES OF THE FEMUR,

the subject selected for discussion by the Committee on Surgery as a substitute for an annual report on surgery.

After dealing with the classification, etiology, diagnosis, and prognosis of the various fractures to which this bone is liable, Dr. Atherton gave a full outline of the general principles of treatment, and emphasized the following conclusions: 1. Always insist on having a good, firm mattress, to prevent sagging of any part. 2. Remove the footboard of the bedstead, so as to have no obstruction to the downward movement of the body, which is apt to take place by traction of the weight. 3. Apply the strips of plaster exactly along the lateral median line, and see that they extend as far up as the fracture, so as to relieve the strain upon the ligaments. 4. Bandage the limb from the toes up. 5. Place a cushion of folded blanket, or other suitable material, between the heel and calf, so as to avoid ulceration of the former from pressure on bed. 6. Test position of pulley, so as to insure traction on line of limb, or a little above that line. 7. When a long external splint is used, pad well above the external malleolus, so as to protect it. 8. Maintain steady traction on limb till everything is in readiness for attachment of the weight. In conclusion, he thought all cases in which existence of fracture is doubtful, should be treated as fracture.

DR. MCFARLANE, of Toronto, said he was disappointed in that the paper did not deal with the special difficulties met with in many cases, such as compound comminuted fractures, distinction between intracapsular and extracapsular fractures of neck, etc., instead of the general management of ordinary cases. He advocated the use of plaster dressings in all cases, as with them he had had almost uniform good results, with seldom over half an inch shortening. In compound fractures he left a fenestrum at seat of wound through which to wash it out frequently—as often as four or five times a day, in some cases.

DR. OLDRIGHT, of Toronto, pointed out the necessity of great care being taken to prevent tilting of the pelvis when making measurements, else the measurements will indicate apparent shortening when the pelvis is tilted toward the side of fracture, when none really exists, and the converse when the pelvis is tilted to the opposite side. He cited a case that occurred in his own practice, to illustrate the truth of this statement. Since then he has provided against such tilting of the pelvis by using a T, placing the crossbar on the anterior superior spines of the ilium.

DR. POWELL, of Toronto, pointed out that, in taking measurements, the tape should pass over the thumb-nail, and the nail then placed in the notch below the iliac spine.

DR. MOORE, of Rochester, referred to the controversy that was long waged between Sir Astley Cooper and Dupuytren, as to whether in intracapsular fracture there could be bony union. In his opinion the question has no effect on treatment, because he thought many cases of intracapsular and extracapsular fractures cannot be diagnosticated. They may appear to be intracapsular at first, but a few days later prove to be extracapsular. Their differentiation is of no moment. From the attachment of the capsular ligament to the neck of the femur there passes up to the margin of the articular surface a strong reflection from the capsular ligament, which is intimately incorporated with the periosteum. This reflected ligament is usually not torn. He cited two cases in which, death occurring within a short time

of fracture, post-mortem examination proved the truth of this statement. In neither of these cases was there scarcely appreciable shortening—not more than half an inch. If left to nature, this reflected ligament soon gives way, and marked shortening occurs. In making measurements, he does not trust to his own feeling as to the position of the nail at the iliac spine, but places an assistant with a thumb-nail in the notch below each spine, and measures from the thumb-nails. We should take advantage of the untorn condition of the reflected ligament, and put on just sufficient weight to overcome the contraction of the muscles, then the reflected ligament will hold the fragments of the bone together. The amount of weight to be attached is to be wholly governed by the sensations of the patient—only using sufficient tension to make him comfortable; more will cause spasm of the muscles, and less will not overcome their contraction; in either case the fragments will be disturbed. He pointed out that eversion is usually slight at first, but there is always some.

Dr. Tremaine, of Buffalo, thought the subject a very practical one, as so many suits for malpractice are brought, on account of deformity following fractures of this bone. He said it was scarcely fair for hospital surgeons to compare their results with those of practitioners who saw only the few likely to be met with in private practice. In the treatment of these fractures as in all others perfect coaptation is the most essential point, and for maintaining the coaptation he thought plaster dressing the best agent. It was unfortunate that it had been condemned by so widely accepted an authority as Hamilton. He strongly disapproved of the practice of frequently washing out of the wound in compound fractures. The parts require physiological rest. The wound should be thoroughly cleansed and then dressed antiseptically.

Dr. Carson, of Toronto, referred to the almost uniformly good results obtained by Syme, by the use of simple coaptation splints. He thought compression by these splints overcame contraction of the muscles better than extension.

Dr. Richardson, of Toronto, protested against the wholesale condemnation of plaster dressings by Hamilton. It is immaterial what is used so long as coaptation is maintained, and that may be attained in many cases by either the inclined plane or straight splint. Any plan requires the exercise of common sense. He also protested most emphatically against the assertion that uniformly good results can be obtained by any plan of treatment. These statements had been the cause of disaster to many a capable, conscientious practitioner in most unjust prosecutions.

Dr. Campbell, of Seaforth, then presented a report on

TWO CASES OF PLACENTA PRÆVIA, WITH REMARKS.

One was delivered at six months and the other at seven. After hemorrhage first developed the cases were closely watched, but gestation was not terminated till the loss of blood became dangerous; when tamponing of vagina was resorted to. Both women made good recoveries. Sponge tents or Barnes's bags might be used to dilate the cervix in such cases, stopping hemorrhage at the same time.

Dr. Temple, of Toronto, was of opinion that so soon as you are convinced of the existence of placenta prævia so soon should you terminate gestation. The dangers are too great to allow a temporizing course to be followed. He thought resort to the vaginal tampon a very unsafe method to adopt for arrest of hemorrhage, as fatal hemorrhage might occur behind the plug and into the uterus without any blood appearing externally. He had seen such cases. He could not commend sponge tents for dilatation of the cervix; they are two slow. Barnes had pointed out very clearly that we should rupture the membranes or separate the placenta from its attachment to the cervical zone. This arrested hemorrhage by pressure of the head by the first method, and by closure of the ruptured vessels by contraction of the uterus in the second. Turning was then usually unnecessary.

Dr. Trenholme, of Montreal, said we cannot lay down hard-fast lines to be applied to all cases—each must be treated on its own merits. In city practice, we may temporize; many cases have gone on to term, a living child being born. In some, hemorrhage is so severe that gestation must be terminated at once. Turning is suitable in such cases. He advocated the use of the tampon in all cases in which there was not special urgency.

Dr. Canniff, of Toronto, was convinced that the plug, if properly applied and maintained, is effective in arresting hemorrhage and permits of the accoucheur being absent for some time with perfect safety. He strongly urged the impropriety of interfering with gestation unless the case be urgent; the child's life should be forfeited only for gravest causes.

Evening Session.

Dr. Gillies, of Seeswater, read a paper on

PNEUMONIA.

From the report of the Registrar-General of the Province he culled statistics showing the death-rate from this disease for several years. The causes were then discussed. As to the nature of the disease, he was inclined to look upon it as a specific fever rather than a local affection with symptomatic pyrexia. The treatment should be conducted on broad general principles; "generalize the disease, but individualize the patient." Some cases require sedatives; some stimulants; and others nothing. The two special sources of danger in all severe cases were from heart failure and the pyrexia. Both should be closely watched.

Dr. Geikie, of Toronto, followed in a long address on the treatment. He advocated venesection in well-marked sthenic cases. Few such cases are seen in cities, hence the condemnation of bleeding by many authorities. Bleeding should be followed by tartar emetic in small doses as a depressant, with opium to relieve pain. Here abstinence should be practised, or very little light nourishment taken till over-action is controlled, when fuller diet with tonics should be given. In mild cases but little depressant remedies should be used, while the asthenic require stimulants from the first.

Dr. Smith, of Seaforth, used cotton-wool instead of poultices, which are apt, from being improperly made and allowed to become cold, to do injury. He opposed the use of antimony as adding to the work of an already burdened heart. He thought quinine the best agent for controlling temperature.

DR. GRAHAM, of Toronto, said that morbid anatomy gives very imperfect ideas of the diseased processes in many diseases. This is very evident in skin diseases in which the appearances before and after death usually differ so widely. He thought the best classification is into sthenic, creeping, and septic varieties. In the large majority of cases the disease is a specific fever. Some are, however, simply local inflammations with symptomatic fever. This view was as old as Laennec, who taught that in cases in which the local inflammation is small with severe constitutional disturbance, the disease is a general one. Inflammation is a vital process, and it is doubtful whether aconite, veratrum viride, etc., have any influence over its progress. Contrary to the preceding speaker, he thought stimulants useful in many cases, as they limit tissue change rather than increase it. In the treatment of all cases the state of the heart should receive special attention. The obstructed pulmonary circulation, lessened respiratory surface, lessened thoracic movement, the pyrexia, and the specific poison, all tend to weaken the heart. The pyrexia can best be controlled by quinine. In septic and creeping cases, tinctura ferri muriatis with stimulants gives best results. Blisters, though not in accordance with theory, are often of great benefit in clearing up a consolidated lung after the acute stage is past.

DR. ROSS, of Montreal, said that no subject deserves more attention as to nature, causation, treatment, etc., in this climate than pneumonia. The discussion this evening had called forth widely different views. Many cases with extensive consolidation, in which the pyrexia is mild, make good recoveries, while others, with high fever and small amount of consolidation, terminate fatally. It is in this line we are to seek to solve the question of treatment. Quinine, in antipyretic doses, has disappointed him. There is no doubt that it has done a great deal of harm. Besides being liable to be followed by evil effects of itself, it is unlikely that it has any effect on the disease; we cannot produce any artificial reduction of temperature by quinine of lasting benefit, especially if not given till the sixth or seventh day. Bleeding late in the disease may be called for when there is extensive consolidation with overloading of the right heart. In conjunction with Dr. Osler, he had resorted to venesection in such a case. The result was altogether satisfactory. He has pursued the same course with other cases since then. The effect is to give mechanical relief to an overloaded nervous system.

Dr. Clark, of Walkerton, and Dr. Carniff, of Toronto, also took part in the discussion.

DR. MCKEOUGH, of Chatham, presented a paper on

THE INFLUENCE OF MALARIA AND QUININE ON PREGNANT WOMEN,

of which the following are the conclusions:

1. Gestation affords no immunity from malaria; it rather renders the woman more susceptible. Of 228 pregnant women under his observation, 36 were affected with malaria.

2. Malarial poisoning tends to induce miscarriage. Of the 36 cases of malaria in pregnancy, 17 miscarried. These figures agree with those of various authorities. As to the cause of abortion opinions vary.

3. Quinine has no tendency to produce abortion in the large majority of cases; exceptionally it causes miscarriage just as occasionally it induces a cutaneous rash.

4. Parturition has a tendency to prolong the malarial attack, notwithstanding the administration of quinine.

DR. HOWE, of Buffalo, gave a short demonstration of cultures and methods in relation to bacteria.

To be concluded.)

THE PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, April 26, 1886.

THE PRESIDENT, S. WEIR MITCHELL, M.D., IN THE CHAIR.

DR. H. F. FORMAD, by invitation, read a paper and presented specimens illustrating

DIFFERENT FORMS OF CEREBRAL HEMORRHAGE.

(See THE MEDICAL NEWS, June 5, page 639.)

DR. DERCUM said that Dr. Formad states that in no case can the blood find its way from the pia mater into the ventricles. That is true of the general surface of the brain, but not of the base. Profuse hemorrhage at the base may find its way into the lateral and third ventricles through the transverse fissure of the brain; of this he had seen an instance.

DR. CHARLES K. MILLS thought that perhaps the statement in regard to the first class of cases may be misleading, if he says absolutely that small hemorrhages in the fourth ventricle and in the lateral ventricle occur only from traumatism. These are of frequent occurrence, particularly in the floor of the fourth ventricle in many diseases. They probably take place at the time of death. He has seen them in cases dying in the epileptic status. They have been found in cases supposed to be hydrophobic.

The occurrence of the hemorrhage in the second class of cases opposite the point of application of the force is interesting, and he thinks is best explained by Duret in his papers on traumatisms. He attributes it to displacement of the cerebrospinal fluid with the formation of numerous vacuoles and the rupture of the bloodvessels from within outward, the largest vacuoles usually occurring opposite the seat of injury. In those cases in which the hemorrhage is in the lenticular body and works its way into the lateral ventricle, numerous ecchymoses occur in various parts of the membranes and of the brain. These occur for the same reason as when the skull is struck from the outside.

He believes that in children hemorrhages occur beneath the pia mater without any special recognizable cause. He has seen one case in which meningeal hemorrhage occurred in a newborn child, probably as a result of traumatism from the use of forceps. Where children die soon after delivery, he believes that death is sometimes due to this cause.

DR. CHARLES K. MILLS reported

A CASE OF UNILATERAL SWEATING.

The patient was an unmarried woman thirty-four years old, sent to him by Dr. Deakyne. Eighteen or nineteen years ago she began to have spasmodic attacks which seemed, from description, to be epileptic. About fourteen years ago she had a stroke of left-sided paresis. About the same time she began to perspire excessively on the side of the paresis. This unilateral sweating has continued up to the present time and is more marked

than before. The secretion on the right side is normal. There is also increased lachrymation on the left side. The saliva seems to be in about equal amount on both sides. Before the occurrence of the spasms she complained of a peculiar taste, probably metallic. She occasionally has slight attacks of dizziness, is somewhat absent-minded, and at one time had severe pain in the head. Four years ago the spasms ceased. The left side of the mouth is visibly drawn a little upward. There is slight paresis of the muscles supplied by the facial nerve. She cannot draw up the left side of the mouth volitionally as well as the right. The slight loss of power in the limbs of the left side is more particularly in the arm.

She has had no trouble with the bladder or bowels. At times the left side of the face reddens very much and remains so for some time. She has some pain on the left side. She has been chiefly treated for uterine trouble. She does not present any signs of the hysterical temperament. Against hysteria are the facts that, in the first place, she has paralysis of the muscles supplied by the facial nerve; second, she has contracture on the left side, which is sometimes present in old cases of facial paralysis; and, third, the persistence of the condition for fourteen years.

DR. EDWARD T. REICHERT thought that it is not only probable that sweat centres exist in the spinal cord, but also that there is a dominant centre in the medulla oblongata. The latter is no doubt bilateral, and while it generally acts as an individual centre, affecting in like degree sweating on both sides, the centre on one side only may be in a condition of over-excitement, as is probably the condition in the present case, thus causing unilateral sweating. The lesion must, he thinks, be above the middle of the pons in order that there may be paralysis of the face and limbs at the same time.

DR. FRANCIS DERCUM believed that the supposition of some lesion of the cortex going on slowly and leaving a sclerotic patch and followed by degeneration involving these so-called sweat centres might explain the case. As regards unilateral sweating, he observed it for four or five years in a case which subsequently terminated in apoplexy. No autopsy was made.

DR. CHARLES K. MILLS said that Dr. Reichert's remarks would indicate a possible cause for this case. It seemed to him that it might be due to a very small tumor or patch of degeneration of some kind high up in the pons. He found, in looking up the subject, one case of unilateral sweating reported in which degeneration of one of the cervical ganglia was found. He attached but little importance to this. He had recently looked up the subject of unilateral progressive facial atrophy, of which more than fifty cases have now been reported. In a majority of these there has been diminution or entire absence of sweat on the atrophic side.

THE BALTIMORE ACADEMY OF MEDICINE.

Stated Meeting, May 18, 1886.

DR. J. J. CHISOLM read a very interesting paper upon

A COMPLETE REVOLUTION IN THE AFTER-TREATMENT OF CATARACT OPERATIONS.

The method had been suggested to him by Dr. Michel, of St. Louis, whom he had seen at the last meeting of the American Medical Association. It was brought before the Section on Ophthalmology, but did not meet with their approval.

Dr. Chisolm, however, decided to make a trial of the plan suggested, and his results have been so favorable that he has now discarded entirely the old method of bandaging and incarceration of the patient in a dark room, for the new method of simply closing the eye in its natural position and retaining it so by a bit of light adhesive plaster, and allowing the patient the liberty of lighted rooms. The advantages claimed are, first, that a more uniform pressure can be obtained through the natural muscularity of the lids than by any artificial padding that might be employed; and, second, that patients who have not been shut out from the light are less sensitive to its action when the eye is sufficiently healed to permit of its exposure, than those who have been retained in darkened rooms. Moreover, it admits of a means of entertainment for the patient, for they can then have their friends read to them, a privilege denied patients treated under the old plan.

The new method recommends itself especially because it possesses, in a most limited degree, any procedure that alters, to a great extent, the normal relations of the patient. The method in detail is simply this, after the removal of a cataract, or the performance of an iridectomy, the eyes, if a cataract, the eye, if an iridectomy, is closed in its normal position, and a bit of isinglass plaster, about two and a half inches long by one inch wide, rendered flaccid by immersion in some germicide fluid, is neatly applied to the surface of the closed lids. When dried this forms a close, firm band. The patient is then allowed the full liberty of his room, and in every case thus far operated upon the results have been uniformly good.

He has treated eighteen cases (fourteen cataracts and four iridectomies) in this way, and many of them go out from the hospital into direct daylight without even as much as smoked glasses to protect them, and they complain of no photophobia or lachrymation. On the sixth day, when the plaster is removed, the eye stands the light better than it did on the tenth day under the old method. The length of time required for complete healing of the eye operated upon is on an average about two weeks, but the most of the eighteen cases could have left the hospital on the tenth day.

The following officers were then elected for the ensuing year:

President.—Dr. P. C. Williams.
Vice-President.—Dr. Alan P. Smith.
Treasurer.—Dr. G. Lane Taneyhill.
Secretary.—Dr. C. C. Bombaugh.

CORRESPONDENCE.

ERROR IN STATEMENT OF RESULTS OF BATTEY'S AND TAIT'S OPERATIONS. DR. BATTEY CORRECTED.

To the Editor of THE MEDICAL NEWS.

SIR: I am sorry that I have, inadvertently, as Dr. Battey says, stated that Dr. Battey's first case had a fatal result. That the mistake was a slip of the pen, or a mistake in dictating to my secretary, is certain, be-

cause, at page 326 of my book on *Diseases of the Ovaries* (4th edition, 1883), I say: "Dr. Battey, of Rome, Ga., successfully operated upon a patient suffering from serious and complicated symptoms. Dr. Battey was the first to publish his proceedings in the *Atlanta Medical Journal* (September, 1872), whilst I contented myself with discussing the principles only in my Hasting's essay on *Diseases of the Ovary* (published in 1873, but written in 1872)."

Dr. Battey has, in turn, done me an injustice which is probably due to a lack of recollection on his part of what took place whilst he was my guest here from July 27 till August 3, 1881, and also what took place at the meeting of the International Medical Congress in London, on August 5th, of the same year.

On the morning of August 2, 1881, I drove Dr. Battey to see a patient from whom I had removed a small ovary for obstinate and intense pain on February 11, 1872, and I brought from a distance of forty miles the patient whom he says died after the operation on August 1, 1872, in order that he might see for himself the object of this strange mistake, and of the first successful operation for removal of the uterine appendages for the treatment of bleeding myoma.

At the meeting of the International Medical Congress, on August 5th, when Dr. Battey read his paper, I distributed a list of all the cases I had done up to the 14th of July, 1881, and I enclose now a copy of that list from the same bundle as those distributed (to the number of two hundred and fifty) in the room. Dr. Battey had a copy of that list.

At the meeting I specially drew attention to Case H. on the list, because it had by error been published as a fatal case in the *British Medical Journal* for 1879, and I explained how the strange mistake had occurred—a kind of mistake which certainly no one could be accused of making intentionally. I need not say that I was surprised, therefore, when Dr. Battey's paper came to be published, a few months after, that he should not have made the correction which he knew was to be justified, and which he ought to have made. Although he had himself seen and questioned the living patient nine years after her operation, and I remember well he satisfied himself of the complete arrest of menstruation as an immediate result of the operation; his paper said: "August 1, 1872, Lawson Tait practised it at Birmingham with a fatal result." Dr. Marion Sims saw the patient at the same time, and, I think, so did Dr. Briggs, of Nashville, and Dr. Roselmyl, of Hamilton.

Finally, Dr. Battey is wholly in error when he says that my voice was not heard from September, 1872, to May, 1879, on this subject. My first utterance will be found, as I say, in my Hasting's essay, published in 1873, and delivered under seal a long time before its publication, and in my own neighborhood and elsewhere I advocated the removal of the uterine appendages for actual disease, but not for the reflex conditions advocated by Dr. Battey. Battey's operation I did not do till August 11, 1879, and now I do not do it at all. On August 2, 1881, Dr. Battey saw me operate for hydrosalpinx—I think the first case he ever saw. But between 1872 and 1878 were perilous times. The clamp in ovariotomy kept us in terror with a mortality of 25 per cent., and no advance was possible. As soon as we were freed from this we went ahead freely, and now the mortality of all our abdominal operations, hysterectomy alone excepted, has practically vanished.

Priority, after all, is an issue perfectly immaterial, but the mixing up of the principles advocated by Dr. Battey and those advocated by myself as belonging to the same operation, is an error against which I shall never cease to protest.

I am, etc.,

LAWSON TAIT.

BIRMINGHAM, June, 1886.

RECTAL EXPRESSION.

To the Editor of THE MEDICAL NEWS.

SIR: I see in THE MEDICAL NEWS of May 15, 1886, a note concerning my method of rectal expression. I fully realize that all the methods of protection of the perineum during the exit of the fœtal head possess disadvantages, and I do not attach very great importance to the choice of means in such cases. An experienced and observing practitioner may obtain good results by very different methods. I believe, however, that the method of rectal expression is useful in general in primiparæ, and always in cases of delivery by forceps. My own experience leads me to affirm this, and several of my colleagues are of the same opinion.

The objects of the procedure in question are: 1. To render the natural efforts regular. 2. To prevent the rupture of the perineum by a too violent effort during uterine contraction; for the method of rectal expression is peculiar, in that it should be applied in the *interval between two pains*—that is, in the period of absolute passivity on the part of the woman. The tissues are at this time relaxed, and the expression of the head may then be effected without roughness. It is true that the accoucheur in no wise augments, by this procedure, the dimensions of the vulvar opening, but the result is due to the pressure exerted upon the face from below upward, which prevents the abrupt deflection of the head. Neither to me nor to other authors who have previously advised the method does it appear doubtful that it presents marked advantages. The artificial diminution of the cephalic diameters which present at the vulvar orifice is practically the equivalent of proportionally augmenting the area of this orifice.

I agree entirely with the statement in your editorial article that art should imitate nature; but I should be greatly embarrassed to find a method which obeys this precept in the matter at present under discussion. You will agree that it is not imitating nature to retard the progress of the head through the vagino-vulvar canal; yet, nevertheless, both you and I apply and advise this general method. Indeed, nature destroys many perineums. I hope to publish shortly interesting statistics of the results of natural labor, unaided by any artificial means whatever, and I hope to show that rupture of the perineum is, in this case, of great frequency. You are possibly of opinion that nature troubles herself very little about these accidents, which, in effect, assure an easy expulsion in future labors. I, too, would be of this opinion, were the ruptures always moderate; but they are, at times, very considerable.

Again, one must admit that if nature permits spontaneous perineal rupture, she also aids in its spontaneous repair. This is very true, and if it were not needful to take into account the complications which frequently

prevent such repair, I should most willingly leave it to nature, who has done the damage. In the Maternity Hospital, however, this plan of action would be out of place, as, indeed, it would be in city practice. I believe, however, that the method of rectal expression, preceded by a period of waiting such as I have indicated, is a procedure which should not be advised until one is satisfied there is none better. There lies the whole question. I have not pretended to teach a perfect prophylactic procedure, but I believe, after much experimental comparison, that it is, thus far, the best. Believe me, etc., A. Doléris.

Paris, 74 Rue de Miromesnil.

NEWS ITEMS.

Suit Against a Health Officer.—A suit has been begun in the Supreme Court, by William Lockwood and Emory McClintock, rag importers of New York, against Edward B. Bartlett, Albert C. Woodruff, Henry E. Ritchie, and Health Officer William M. Smith, to recover $15,000 damages for losses sustained by the seizure of 3070 bales of rags consigned to the plaintiffs, which arrived at New York on the "Vigilant" and the "Battaglia," on May 30, 1885. The suit is a test case and is extremely important, inasmuch as if it is decided against the defendants other suits will probably be begun to secure to other importers indemnity for the losses suffered by them through the decision of Dr. Smith, that rags from foreign ports must be subjected to the patented process of so-called disinfection controlled by Messrs. Bartlett, Woodruff, and Ritchie.

Physical Training in American Colleges.—The U. S. Bureau of Education has just published, under this title, an elaborate report of 183 pages, on American gymnastic methods and facilities, illustrated by plans of the gymnasiums of the various colleges and universities. The report was prepared by E. M. Hartwell, M.D., of the Johns Hopkins University.

The Pasteur Institute.—The Municipal Council of Paris has placed at the disposition of the Pasteur Institute 2500 metres of land.

Gambetta's Brain.—At the last session of the French Anthropological Society MM. Mattias-Duval and Schudzinsky presented a model of the brain of Gambetta. The region of Broca was seen to be enormously developed, and presented more intricated subconvolutions than have hitherto been noted.

Another Medical Knight.—The honor of knighthood has been conferred on Dr. A. Douglas Maclagan, Professor of Medical Jurisprudence and of Public Health, and Emeritus Professor of Clinical Medicine at the University of Edinburgh.

A Suggestive Method of Averting Ophthalmia.—The Hon. Ralph Abercrombie, in *Nature*, says:

"Three cases have come under my personal observation in which brown-skinned natives, in very different parts of the world, blacken their faces to protect them from intense light and heat." The examples he gives are those of the inhabitants of Morocco, as well as of others along the north of Africa, who blacken themselves around the eyes to avert ophthalmia from the glare of hot sand. The natives of Fiji do the same, and so do the natives of the Sikhim Hills, and it is only reasonable to suppose that a practice of such wide diffusion and such striking similarity is found protective in the places and under the conditions contemplated.

A Sanitary Convention at Coldwater, Michigan, under the auspices of the State Board of Health, will be held on Thursday and Friday, September 23 and 24, 1886.

Lead-poisoning by Household Utensils.—The German Parliament has now under consideration a bill that is intended to regulate the employment of lead in the manufacture of cooking and other domestic utensils, and so to diminish the risk of poisoning by that metal. The provisions of this measure forbid the use of vessels containing more than ten per cent. of lead in their composition for the above purposes. No alloy with over one per cent. may be used in coating iron articles used in cookery. Solder may consist of lead to one-tenth of its amount, but no more. Enamels into which lead enters are treated with equal stringency. The effect of this bill, if it be passed, will be to obliterate the legal existence of pewter and of soft solder as at present made, since these alloys contain from one-half to one-fourth their weight of lead.

Sal Alembroth: Sir Joseph Lister's Latest Antiseptic.—It may be news to a great many to learn that Lister has discarded the use of the spray almost entirely. He now uses sal alembroth exclusively in his wards for dressings, and it has so far given very fine results. It is a double mercurial salt formed by the sublimation of a mixture of perchloride of mercury and chloride of ammonium, and is exceedingly soluble. The salt was known to the alchemists, but has not been used in medicine in modern times. Lister prepares all his dressing now with a 1:100 solution of this, gauze cotton-wool, lint, bandages, draw sheets, and where the wound is covered by the shirt, it is rendered aseptic by dipping it in the solution and drying before the fire. To make any of these dressings, all that is necessary is to soak them in this solution and dry. It not being volatile, does not require to be kept sealed in tin cases. He also colors these dressings with aniline blue 1:10,000, the benefit to be derived from this is that wherever an alkaline discharge comes in contact with the dressing, the blue is removed and turned reddish, enabling one at once to see where the discharge has been, if the quantity was ever so small and had dried up before the dressing was removed. There is one precaution in using this dressing, and that is this: the dressing being dry and frequently handled might have some septic matter from bedclothes, hands, etc., so he always dips it in 1:2000 perchloride just before applying it. He is making a sal alembroth protective, which will be surcharged with the antiseptic, so that as a discharge comes through a dressing it will come in contact with this protective and can be kept aseptic.—*Canadian Practitioner*, May, 1886.

Mistakes in School Architecture.—The *Sanitary News* of March 27th contains an article under the above heading, from which the following notes are taken.

Members of the county boards of health, and others who have at heart the good health of the children of the State, will do well to give these suggestions their attention.

The school building should never be more than two stories and basement high. The ceiling of an ordinary schoolroom should be from thirteen to fourteen feet high. The lighting of the room should be ample, the window-space never less than one-fourth of the floor-space. Lighting from two sides should be from left and rear, but never left and right. The walls are best of some delicate tint. The old-time white wall is irritating to the eye. A hard surface which can be easily washed is to be recommended. The room should be about thirty-two feet long and about twenty-six feet wide. Forty pupils are enough for one room, and the number should never exceed fifty. The floor should be of hard, polished wood, which absorbs little, and is easily cleaned. The above proportions would give each pupil at least twenty square feet of floor space and three hundred cubic feet of air space. The ventilation should be perfect. It should be near the floor. Each pupil should be supplied with 2000 cubic feet per hour, and certainly not less than 1500. With a large number of pupils in one room, this can only be effected by some mechanical means—best by a central ventilating shaft heated by the smoke-stack and connected with the rooms by flues. Earth or dry closets should be used, thoroughly deodorized and frequently emptied.

A Sign of Death.—M. Lessenne, at a meeting of the Société Médicale d'Amiens, pointed out the following simple and trustworthy sign of death. After pricking the skin with a needle the puncture remains open, just as when a piece of leather is pricked. On the living body, even if the blood does not come to the surface, as would happen if the person were hysterical, the pin-prick closes at once, and does not leave the slightest trace.

Inoculation for Yellow Fever.—The modern expedient for settling knotty points in science is to appoint a commission; success, it is true, has not uniformly attended this method, and the reports, if not polemical, are generally colorless. Yellow fever is the disease which is now to be investigated in this way. A few years ago, Dr. Domingos Freire announced that he had prepared a vaccine which preserved the vaccinated from yellow fever; his method of experimenting, however, did not commend itself to bacteriologists; and M. Rebourgeon, who had been trained in M. Pasteur's laboratory, was sent out to Rio de Janeiro to guide Dr. Freire into the right way. The papers since published by these two experimenters confirm the earlier claims, and M. Rebourgeon has returned to Paris to convince the sceptics; he informed the Société de Biologie at its meeting on May 22d, that, during the recent epidemic, 6000 persons had been inoculated, of whom not one suffered from the disease; and that, in seven cases where patients were inoculated while suffering from the disease, recovery took place in every instance. The Society appointed a Commission of five, including MM. Brown-Séquard and Cornil, to study the method.

In the United States, moreover, the demand for a commission has been backed by the American Medical Association.

NOTES AND QUERIES.

THE COPPER TEST FOR SUGAR—A CORRECTION.

To the Editor of The Medical News.

Sir: The abstract published in your issue of June 26, p. 715, of my paper read before the Association of American Physicians, contains an error which, I fear, will give an erroneous impression unless corrected. The reporter says: "Since Dr. Tyson has ceased using copper salts in testing the urine of gouty patients for sugar, he has ceased to find evidences of it." He should have said: "Since Dr. Tyson has been aware that uric acid very frequently reduces the salts of copper, he has not found sugar in the urine of gouty patients," meaning that with proper precautions this source of error is avoided. I still find the copper test, in the shape of Fehling's solution, the most delicate and satisfactory test for sugar.

James Tyson.

1560 Spruce Street, June 29, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JUNE 26, 1886.

Beardsley, Grove S., *Medical Inspector.*—Detached from the Navy Yard, Norfolk, and ordered to the "Brooklyn."

Bright, G. A., *Surgeon.*—Detached from "Brooklyn," and ordered to Navy Yard, Norfolk.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JUNE 22 TO JUNE 28, 1886.

McParlin, Thos. A., *Colonel and Surgeon.*—Granted leave of absence for two months, with permission to apply for an extension of one month.—*S. O. 146, A. G. O.*, June 25, 1886.

Magruder, D. L., *Lieutenant-Colonel and Surgeon.*—Granted leave of absence for two months, to take effect on or about July 1, 1886.—*S. O. 146, A. G. O.*, June 25, 1886.

Page, Charles, *Lieutenant-Colonel and Surgeon.*—Leave of absence extended ten days.—*S. O. 146, A. G. O.*, June 25, 1886.

Brooke, John, *Major and Surgeon.*—Ordered for duty as Post Surgeon, Fort McHenry, Baltimore, Md.—*S. O. 67, Division of the Atlantic*, June 23, 1886.

De Witt, Calvin, *Major and Surgeon.*—Ordered for duty in Department of Dakota—*S. O. 142, A. G. O.*, June 21, 1886.

Gardiner, John de B. W., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon, Newport Barracks, Newport, Ky.—*S. O. 67, Division of the Atlantic*, June 23, 1886.

Gibson, Robert J., *Captain and Assistant Surgeon.*—Granted leave of absence for thirty-five days.—*S. O. 43, Division of the Pacific*, June 14, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING JUNE 26, 1886.

Sawtelle, H. W., *Surgeon.*—To proceed to Wilmington, California, on special duty, June 22, 1886.

Wheeler, W. A., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, June 23, 1886.

Williams, L. L., *Assistant Surgeon.*—To proceed to Buffalo, New York, for temporary duty, June 24, 1886.

Norman, Seaton, *Assistant Surgeon.*—To proceed to Cleveland, Ohio, for temporary duty, June 26, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1008 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

THE FREQUENT DEPENDENCE OF DISEASE OF THE EAR UPON CATARRHAL DISEASE OF THE NOSE.

The Annual Address delivered before the Lehigh Valley Medical Association, at Glen Summit, Pa., June 16, 1886.

BY CHARLES H. BURNETT, A.M., M.D.,
PROFESSOR OF OTOLOGY IN THE PHILADELPHIA POLYCLINIC.

THERE have come under my observation so many cases of hardness of hearing in which the throat has been considered the starting-point of the aural disease, and in which the nares, though manifestly the real seat of the original disease, have not been even examined, that my interest in such cases has been especially enlisted. Since aural disease caused purely by throat affections is rarely, if ever, seen, and since all catarrhal diseases of the middle ear, whether acute or chronic, are caused by, or closely associated with, nasal disease, I have proposed to speak to you at this time upon the important causal relation between rhinitis and aural diseases. And, if I succeed in directing your attention to the nares, rather than to the throat, as the seat of the original cause of most cases of catarrhal deafness, I shall be amply rewarded. For I shall feel that I have rendered you a service, if I succeed in disabusing your minds of the erroneous and misleading idea that from the fauces catarrhal ear-disease usually springs. It requires but a little reflection, upon the anatomy and physiology of the nasal cavities, the nasopharynx, the Eustachian tubes, and the middle ears, to see how this should be so. These parts are in intimate relation, both anatomically and physiologically; whereas the fauces and the larynx are connected with the pulmonary system, and their diseases go downward to the lungs, rather than upward to the ears.

It is, therefore, to the structure, and then to an important disease of the nasal and naso-pharyngo-aural mucous membrane, that I especially call your attention. In the nasal cavities there can be distinguished a thick mucous membrane, rich in glands, from a thinner portion, poor in glands, found in the sinuses, on the under surface of the turbinated bones, and in the middle ear. Hence at some places in the nares, like the borders of the cartilaginous septum, and on the inferior turbinated bones, the diameter of the mucous membrane may amount to from 2–4.5 mm. Here the thickness of the mucous membrane does not depend, however, solely on glandular and submucous tissue, but also upon numerous, almost cavernous venous plexuses, or sinuses, especially developed at the edge and posterior extremity of the inferior turbinated bones. These sinuses extend from the interior of the structure outward, so that there is thus formed a kind of erectile tissue at these points in the nose—a most cardinal consideration in the study and treatment of naso-aural disease.

Immediately behind the nasal cavities are found the nasopharynx and Eustachian tubes. The latter may be considered, practically, continuations of the nasal cavities. The mucous membrane of the Eustachian tubes possesses a ciliated epithelium like that of the nasal cavities, especially in the upper and osseous part of the tube.[1] In the lower part of the Eustachian tube, the mucous membrane is richly studded with acinous glands, and it is also thrown into peculiar folds, which are intimately connected with the mechanism of the tube. An inflammation of these districts, therefore, becomes a serious disease, difficult to treat. In the nasopharynx is found, in addition to mucous membrane, rich also in glands and folds of membrane, the peculiar adenoid structure known as the pharyngeal tonsil. These tissues are all more or less erectile, and are extremely liable to be affected by an inflammation in the nares. When these tissues in the nasopharynx and the Eustachian tubes are congested and inflamed, the normal ventilation of the nasopharynx, the Eustachian tube, and middle ear, is impeded, and incipient ear disease, with deafness, is imminent.

Mechanism of the Eustachian Tube.—The Eustachian tube is one-third an osseous canal and two-thirds musculo-cartilaginous, but is lined throughout with mucous membrane. The osseous portion is nearest the tympanum, while the muscular part is in the nasopharynx. A transverse section of the tube in its lower or muscular part shows that its posterior wall is composed of cartilage, and its anterior or lateral wall of muscular and fibrous tissue. The posterior wall curves upward and forward, so that its transverse section is shaped like a shepherd's crook. This wall is firmly fixed to the base of the skull. The anterior or membranous wall is found to give attachment to the fibres of the tensor palati muscle, and is movable. A transverse section of this tube is also somewhat crook-shaped like that of the cartilaginous wall. The part of the lumen under the crook is very narrow but is always patulous from the rigidity of the cartilage which forms its boundaries, and thus constitutes the so-called "safety-tube" of Rüdinger, because, being thus ever patulous, it permits a quick recoil of air from the tympanic cavity. This prevents rupture of the membrana when it is forced inward by any sudden condensation of air or an explosive force, in or about the external ear.

The lower and by far the major part of the calibre of the tube is below the hook in the cartilaginous wall. It resembles, in a state of rest, a mere chink between the cartilaginous and muscular walls, the sides of which are studded with glands, and the mucous membrane of which is thrown into folds. These latter features are especially marked in the parts near the nasopharynx.

[1] It must also be borne in mind that the nerves of the Eustachian tube are derived chiefly from the tympanic and pharyngeal plexus, and that its vascular supply comes from the tympanic and pharyngeal vessels.

The Eustachian tube is opened by the separation of the anterior wall from the posterior. This is effected chiefly by the action of the tensor and levator palati muscles. For, at each elevation and tension of the velum palati, the anterior wall of the tube is drawn away from the posterior wall and the entire lumen is thus rendered momentarily patulous, and the air from the nares and nasopharynx aërates the drum-cavity.

The function of the Eustachian tube is, at each act of swallowing, to supply air to the tympanic cavity, and thus maintain an equilibrium in the air-pressure on each side of the membrana tympani. This holds the membrana and the chain of ossicles in a state of isolation, as physicists term it, and ready for proper, pendulum-like oscillation, or vibrations, upon which hearing depends. If the membrana is not thus maintained in a state of equilibrium as to the pressure of air on either side, the membrane yields to the greater pressure on one side, and sinks inward or bulges outward according to the direction of greater pressure. In the first state, that of retraction, the chain of bonelets is locked, their joints are held too tight, they cannot vibrate freely and hearing is impaired at once. When the membrane bulges outward, it draws the malleus away from the incus, the normal medium of auditory vibrations is thus disturbed and hearing is altered. The first state, that of retraction of the membrane and locking of the chain of bonelets, may occur in acute coryza and in other catarrhal processes involving the nasopharynx, because the mucous membrane in the nasopharynx and about the mouth of the Eustachian tube is swollen so as to impede the proper opening of the tube, and the ventilation of the tympanic cavity. In chronic catarrhal processes the disease of the mucous tissues may become so great as to extend to the underlying muscular tissues and there induce a form of paresis which renders the muscles inefficient in a ready opening of the Eustachian tube, and normal airing of the tympanic cavity. It is easily seen, therefore, how important an inflammation in the naso-pharyngo-aural mucous membrane becomes. Such an inflammation has received the name of catarrh, or catarrh in the head. In our language the term catarrh is limited, in the present day, almost entirely to inflammation of a subacute or chronic form, in the nares and naso-pharyngo-Eustachian mucous tissues.

The symptoms of ordinary acute coryza are too well known to require enumeration or close description here. There are, however, some reflex nervous symptoms and aural phenomena connected causally with coryza and rhinitis which demand our attention. These, with their treatment, should receive due regard from every practitioner of medicine, because upon their prompt recognition and proper treatment often depends the function of hearing. The duration of the symptoms of acute rhinitis varies from three or four days to as many weeks, although after lasting the latter period it may begin to assume a chronic form. The voice assumes the nasal twang when the anterior nares are chiefly affected; when the posterior nares are the chief seat of swelling, *m* is pronounced as *b*, and *n* as *d*. Then, too, the Eustachian tube is more or less involved in the swelling of the mucous membrane, and its permeability is impaired, as shown by the tinnitus aurium, the altered quality of sounds, or decided hardness of hearing. If the sinuses are implicated, there is pain in them; or if the middle turbinated bones are pressed upon (Allen), there may be a pain in the temporal or parietal region, or even in the vertex. When such a grade of catarrhal swelling has invaded the nasopharynx and the nares, there may be dull and fugitive pains in the ears, which may settle into constant earache when relief is not given to the closed tympanic cavity. In infants the symptoms are often serious, as they cannot suck, on account of their closed nares, and their ears may become either the seat of acute inflammation, inducing convulsions, or the Eustachian tubes may become chronically closed, producing deaf-dumbness.

An excitation of the nasal mucous membrane induces reflex phenomena—*e. g.*, lachrymation, copious secretion of nasal mucus, reflex cough, disturbed respiration and phonation, asthma, spasm of the larynx, and spasmodic aphonia. It is also claimed by some that epilepsy may be evoked by chronic nasal irritation. It is a fact that congestion of the membrana tympani, and of the anterior wall of the external auditory canal near the membrana, and dull earache, are produced by acute rhinitis. These are purely reflex phenomena in many instances, being due to diminished inhibitory power in the vasomotor nerves of this region. Vessel dilatation and passive congestion, passing often into inflammation, are the results. It was once supposed that inflammation of the ear in rhinitis was due to direct extension of inflammation from the nares, through the Eustachian tube to the middle ear. This may, indeed, occur; but sometimes the external surface of the membrana and the external auditory canal alone are found inflamed in acute coryza, the Eustachian tube and middle ear remaining intact. The path of nervous connection in such cases is through the nasal branches of the sphenoid palatine ganglion, and thence by the sympathetic connection with the carotid plexus to the vessels supplied by the carotid to the membrana tympani, and those parts of the external auditory canal near it.

Predisposing causes of acute rhinitis are childhood and the strumous diathesis, in which the tonsils, the nasopharynx, and the Eustachian tube are likely to be affected. Also those who lead a sedentary life, the rheumatic, those with feeble respiratory systems, and the nervous, are prone to nasal catarrh.

The exciting cause is usually exposure to cold, though exposure to the heat of the sun, and confinement in hot apartments, may also induce an acute coryza. According to Morell Mackenzie, coryza occurs epidemically "only when a sudden lowering of the temperature coincides with an increased humidity of the air." There is no evidence that acute coryza is infectious, and the experiments of Friedreich on inoculation upon himself were negative in their result.

No less an authority than the late Cohnheim, said: "The essence of inflammation is not to be found in either the dilatation of the vessels, in the increased rapidity of the flow of the blood, or in the subsequent contraction of the vessels, but in some unexplained local change in the walls of the vessels of the part affected." What this change is, he was not able to say, as he had not succeeded in finding any structural alteration. Nevertheless, discussion of the etiology of coryza and of the *modus operandi* of the alterations produced by chronic catarrh in the upper air-tract, seems

desirable. While indisposed to ascribe catarrh of the nares to cold entirely, yet I confess to belonging to that part of the profession which believes that a change of temperature, most usually an influx of colder air upon the mucous membrane of the nares and fauces, and upon the general surface, in what may be termed an unprepared state, causes acute rhinitis, or a cold in the head.

As soon as inflammation has set in, in such a tract, exposed as it is in a high degree to the atmosphere, I can easily see how it is that germs are found in the results of inflammation very soon in the course of the disease; but these are emphatically *post hoc* and not *propter hoc*, in their occurrence. They appear because a fitting soil for germ growth is then supplied by the inflamed mucous membrane and the morbid and decomposing secretions.

An example of such occurrence of germs and mycelial development after irritation and inflammation of living tissue, is seen in the growth of aspergillus in the auditory canal and over the membrana tympani. Here the irritation and abrasion of the skin tissues come first, according to my observation, either from undue efforts of the patient at scratching or cleansing the meatus, or from a furuncle. A little serum or blood is thus exposed to the saprophyte, it settles on the already wounded tissue, and grows. The inflammation is usually increased by the growth of the parasite, but it is most surely not caused by it. So in catarrh of the nares; the germs described as causative in this disease are most probably the result of the lodgement of germs, always to be found in the atmosphere, and hence easily brought to the air-passages, where, in the catarrhal state, is furnished a soil favorable to the full development of a so-called specific disease-germ.

Were this not so, all the so-called prodromes of coryza must be held to be sequences of the lodgement of "coryza germs" in the nares, their invasion of the submucous tissues, and of their development therein: which no one is quite ready to assume. It may, however, be admitted that a specific germ may specifically aggravate an inflammatory process already established in the nasal mucous membrane, but until it can be shown that it is the entrance of such a germ into the nares which inclines the skin to become chilled and the nasal mucous membrane to become congested, it cannot be said that the germ produces coryza. At certain times, and in some conditions of the atmosphere, there may be an excessive number of irritating germs in the air we breathe, and at such times a coryza may be more easily contracted, or, if already existing, may be made worse.

Coryza is, in reality, due to inflammation of the part of the body offering, as it is aptly termed, the "least resistance" at the time of exposure to changes of temperature.

The theory of "least resistance," to which I adhere, is somewhat like this, as set forth by Niemeyer: At a given time there is a certain quantity of blood in the body, evenly diffused throughout the vascular tract. If a contraction or congestion take place at any point in this tract, an over-distention must ensue in some other part as a compensation. This causes a congestion in the compensating region. Thus, after extensive burns of the skin, inflammation may ensue in the bowels. It is claimed that, like all fluids, the blood, when compressed at any point, will seek a recoil at the point of least resistance, and thus, in the instances alluded to, certain parts far from the original irritation are congested, and even profoundly and fatally inflamed.

It is further claimed that the mucous membrane of the respiratory tract is more liable to be congested than other parts of the body, because it is rarely ever free from irritation by foreign substances, especially in so-called civilized communities. Dust acts as an irritant, and the impure air of houses, factories, schools, etc., lowers the tone of the capillaries of the respiratory tract, and renders them still more liable to inflammations. Thus, when the temperature of the surface of the body is unduly or suddenly lowered, the upper respiratory tract, especially the nasal cavities, becomes easily and quickly congested and inflamed, and we say we have "taken cold."

If the attacks of coryza, or "cold in the head," become numerous; if the patient begins to take cold easily, as it is termed, the nares, the point of least resistance in such a case, soon become chronically engorged and a tendency to chronic nasal and aural catarrh is developed.

The Nares in Infants.—In the nasal cavities in infants the meatuses are very narrow, and the free edge of the inferior turbinated bone is longer and curved further around into the meatus so that there is scarcely any passage.[1] The relative smallness is most marked in the middle meatus. Infants in health breathe naturally through their nares, which obviates mouth-breathing and favors a healthy condition of the nasopharynx and Eustachian tube. But the natural smallness of the nasal meatuses favors their easy closure by a swelling of their mucous membrane, such as a coryza would induce.

This liability to a greatly stopped nose in infants favors the development of chronic nasal catarrh of the hypertrophic form, closure of the Eustachian tube, and chronic catarrh of the middle ear, with profound hardness of hearing. This condition in infants is most disastrous, as it tends to make them deaf-mutes. It is thus, without doubt, that many cases of so-called congenital deaf-dumbness are brought about, the deafness being in fact due to a neglected, because unrecognized chronic hypertrophic nasopharyngeal catarrh occurring soon after birth. The process is similar to that in an adult, but more intense and more rapid, and occurring at a time when the child must hear in order to learn to talk, the deafness interferes with this acquisition and the sufferer becomes a mute. I have seen cases in which there was a clear history of such a catarrhal process in the first year of life, and no history of any other malady to account for the deafness. Congenital deafness is most rare; it is indeed very doubtful whether it ever occurs, excepting in an otherwise malformed child. In all cases of so-called congenital deafness, unless there is a distinct history of a traumatic or febrile cause, I have found that the undoubted cause has been a chronic and neglected rhinitis, ending in chronic catarrhal otitis media. The hyperplastic tendency being great at this age, the deafness soon becomes profound and permanent. The lesion at first is most probably occlusion of the Eustachian tube and ankylosis of the chain of ossi-

[1] Kohts and Lorent, 1878.

cles. Finally there is degeneration of the nerve filaments in the labyrinth. The prognosis is, of course, most unfavorable, unless the disease is recognized and treated at the beginning.

Earache in Children.—Acute coryza in children is especially likely to produce congestion of the vascular and glandular mucous membrane of the nares and nasopharynx, closure of the Eustachian tube, mouth-breathing, and earache. This does not always produce rupture of the drum membrane. The state of congestion seen in these cases seems to intermit in daytime, nose-breathing gets easier, mouth-breathing less frequent, and the earache may pass off, so that the child plays around the house, or even goes to school or plays in the open air. If, however, the membrana tympani be examined, it will be found that it does not lose its congestion, but remains red and macerated or infiltrated in appearance. As night comes on, the nares and nasopharynx become more congested and the ear begins to ache again. This catarrhal otitis may continue for several days without any more severe symptoms than I have given. On the other hand, the symptoms may suddenly grow worse, the patient may have a continuous and severe pain in the ear with an intensity of suffering which is relieved at last by a rupture of the membrane and the escape of muco-pus from its tympanic cavity. In infants, such a tympanic inflammation, resulting from a coryza, may induce convulsions, or even meningitis and death, without the discovery of the true aural origin of the disease. In such an instance the convulsions and brain disease are attributed erroneously to teething, that great scapegoat, which is supposed to produce diarrhœa in summer-time, and coryza in winter-time.

The results of inflammation in the nares and nasopharynx are easily divided into the acute and the chronic. The acute inflammation soon passes on to exudation, the exudate consisting of the blood-plasma with leucocytes. Generally, however, after such an acute inflammation, the mucous membrane returns to its normal condition. At all stages of a catarrh, however, there is a swelling of the mucous membrane which leads to obstruction of the nares and other passages connected with them, all of which are temporary in acute forms. In the chronic forms a permanent thickening of mucous membrane in the nose, Eustachian tube, and middle ear ensues.

In adults, and also in some children, the earlier and simplest effect of a cold in the head, upon the ears and the hearing, is a slight stuffed sensation in one or both ears, with subjective buzzing, singing, or pulsating sounds in the ear, and, in some instances, an alteration in one's own voice and in the hearing. This may be at first a hyperæsthesia, or it may be a slight impairment in the auditory sense. These symptoms may all pass away as the nares get clearer, without any treatment. But these simpler phenomena, in and about the Eustachian tube and middle ear, may become intensified. The stuffed feeling may increase, itching and pain may pass from the back part of the nares into the ear, and an acute otitis media catarrhalis may be developed, with decided impairment of hearing.

These phenomena may also gradually subside by a form of resolution, in the course of three or four days or a week, leaving at most a stuffed and crackling sensation from the hypersecretion in the Eustachian tube and the middle ear. Gradually these products may be absorbed, the tissues may reassume their normal tenuity, the hearing may be reëstablished, and the attack forgotten, without any special treatment.

Frequently, however, the catarrhal congestion and closure of the Eustachian tube do not terminate by this fortunate resolution, but all the symptoms grow worse; there is earache, and there is developed an acute purulent inflammation of the middle ear. These cases generally terminate by a perforation of the membrana tympani, an escape of muco-purulent matter and pus from the tympanic cavity by the way of the external meatus of the canal, and for the time being, at least, there is hardness of hearing. Such a process may involve both ears, though usually only one ear is affected in this manner by an acute coryza.

The Chronic Form.—The surgeon now begins, in the observation of such a case of aural inflammation, to approach the chronic results of catarrhal processes in the nares and nasopharynx. For after a perforation of the membrana and the appearance of a purulent discharge, the disease loses its acute form and assumes more or less chronicity. It will be found that a similar chronicity or subacuteness has been assumed by the disease of the nasal and nasopharyngeal tissues. The medical attendant is now called upon to investigate most thoroughly the condition of the inflamed parts, and to treat them as will be shown later.

I have thus sketched the course of a catarrhal process in the nares and middle ear, which has ended in suppuration and the destruction of tissue. There are, however, *more* cases in which the catarrhal process in the nares and nasopharynx tends to a thickening of the tissues in the nares, Eustachian tube, and middle ear than to suppuration and destruction of tissue.

These are the true chronic catarrhal processes, assuming from the outset a tendency to chronicity, appearing with every cold, getting a little worse with each such attack, or with some other constitutional malady, and finally gliding into truly chronic nasal and aural catarrh, with more or less profound deafness. These are hypertrophic processes, to begin with, in which there is a tendency to the formation of hypertrophy in the nasal mucous membrane, especially on the turbinated bones and in the Eustachian tube. Such a process in the naso-Eustachian tract leads to thickening of the mucous membrane in the drum cavity, and to retraction of the membrana tympani. Their onset is often insidious, without the fulminant attack of the purulent form, which, if properly managed, usually terminates favorably in every way.

The chronic catarrhal process, with the hypertrophic tendency, however, often attracts little or no attention at first. It is noted that colds in the head, or in the nasopharynx, make the ears dull of hearing in the early attacks. This dulness does not pass off readily, but gets worse, and remains longer after each coryza. Finally, the hardness of hearing becomes permanent, either with or without tinnitus aurium, and in one or in both ears. Usually both ears are affected in chronic hypertrophic catarrh, but not to the same extent.

The impaired permeability of the Eustachian tube and the imperfect ventilation of the tympanic cavity, induced by catarrhal swelling in the mucous membrane of the nasopharynx and Eustachian tube, brings about

a diminished aëration of the drum cavity. The air in this cavity not being renewed with normal frequency, or not at all, as in some cases of profound swelling of the mucous membrane, the air locked in the drum cavity is soon absorbed and a quasi vacuum formed. The external air now forces the membrana tympani inward, the ossicles are carried with it, and tinnitus aurium, deafness, and vertigo are caused.

Vertigo, more or less pronounced, may occur in both acute and chronic naso-aural catarrh. It is generally worse, however, in the latter than in the acute condition. It is due to pressure upon the endolymph in the vestibule and other parts of the labyrinth, and thence upon the cerebro-spinal fluid. This pressure is exerted by the forcing inward of the stapes in the oval window, by the retracted membrana tympani as already stated, and also by the direct pressure of the swollen mucous membrane of the drum cavity, upon the membrane of the round window. By the force arising from these sources the endolymph is compressed and the terminal filaments of the auditory nerve, especially those portions in the ampullæ of the semicircular canals, are compressed. By this means the so-called vertiginous centre of the brain is irritated, and the patient experiences vertigo, with reeling and vomiting, and, in some cases, syncope. The latter, however, is rarely observed, and then only after intense and prolonged nausea. One of the guiding points in the differential diagnosis between aural vertigo and vertigo from cerebral disease, is the retention of consciousness in aural vertigo, notwithstanding many epileptiform accompaniments.

Treatment.—Having shown that disease of the nares and nasopharynx is the original cause of most aural disease, treatment must necessarily be directed to these parts. A word must also be said here about the prevention of disease in the nares and ears, as well as concerning the diet and general hygiene in colds in the head and ears. Cold water must not be allowed to enter the external ear of any one with a tendency to aural inflammation, and snuffing water into the nares, for purposes of cleansing or hardening the tissues and keeping off colds, must also be prohibited. If cold water enters the external ear, myringitis and even otitis media may be the result in any one, whether predisposed especially to catarrh or not. Water snuffed into the nares can be drawn easily into the Eustachian tube and the middle ear, and thus otitis media acuta, with intense suffering, induced. After any form of bathing the head, the hair and scalp should be dried as thoroughly as possible. After such ablution, draughts at all seasons of the year, and even going soon into the open air in the winter-time, should be avoided. If in spite of all precautions, coryza is contracted and the nasopharynx and the ears become affected, the first care should be to protect the body by housing, and the treatment may be briefly defined as diaphoretic and antiphlogistic. The diet should be plain and light. There is no more fallacious aphorism in popular medicine than "to feed a cold." Highly seasoned food and spirituous drinks quickly congest the fauces, nasopharynx, and ears, and, therefore, must be avoided. Smoking by the mouth, but not by the nares, may be indulged in if desired. Parenthetically, it may be stated that the practice of smoking through the nose is very likely to induce, in anyone, nasal catarrh and aural disease. In winter time, or in cool weather at any point in the calendar, it will be safest for the patient to remain in the same room, with a uniform temperature of not less than 70° F. At other seasons this matter must be decided by convenience and the patient's feeling.

The patient's mind must be disabused of the idea, so widespread in the community, of "breaking the cold" with quinine. Next to the high-feeding fallacy, in the treatment of colds in the head, comes the quinine treatment, largely carried on by patients themselves. Upon the slightest intimation of the onset of an acute rhinitis or "a cold," they prescribe for themselves and their friends ten grains or even twenty grains of quinine at a dose. This congests the auditory canal and the membrana tympani, as revealed by inspection, and tends to congest the head generally, and, of course, the patient is not only made more uncomfortable, but he runs the risk of inducing by his rash therapeutics a profound congestion, and a permanent lesion in his cochlea and auditory nerve.

The recent experiments of Kirchner, Schilling, and Schwabach, with quinine and salicylate of soda, show that large doses of these drugs may produce destructive changes in the labyrinth and auditory nerve contained therein. The lesion has been shown by post-mortem examination of the ear of cats to consist in a copious extravasation of white and red blood-corpuscles throughout the cochlea and other parts of the labyrinth. Hence, caution is necessary in administering this drug where congestion about the head and ears is already established.

Quinine judiciously administered at the termination of the acute symptoms of a coryza will tend to overcome the debility which invariably attends this disease, but in the acute stages I do not hesitate to say it is contraindicated, unless in very small doses of four to six grains daily, to overcome an unusual prostration.

The sudorific and anodyne treatment can be best carried out by the use of Dover's powder, the bromides, hamamelis, gelsemium, and aconite. If patients will honestly submit to hygiene and treatment at the hands of an educated physician, their colds can generally be shortened and cured. If they will not submit to rational treatment, they, and not their physicians, are to blame. Dover's powder acts better in many cases when given in small doses during the day, rather than at night in one dose. Laudanum in doses of from five to seven drops, several times daily, will also control irritation and lead to its resolution in numerous cases of acute coryza. Benefit may be derived also from vapors of camphor and iodine, and fumes of benzoin. The patient should be cautioned against sneezing, or even blowing the nose forcibly, as both acts tend further to congest the nasopharynx and the Eustachian tubes.

The bromides may be given in small doses, five grains every hour, and two or three grains of chlorate of potash may also be given, as frequently, in the form of lozenges, to be slowly dissolved in the mouth. This treatment, carried out while the patient remains in his room, I have known greatly to curtail the acute stages of a coryza, and to give relief to the peculiar irritation in the mucous air tract, so hard to endure in this stage. It has seemed to me to act by producing free diuresis.

Hamamelis is best exhibited in the form of the dis-

tillate, ten to fifteen drops, three times daily. It is claimed by many to have an aborting power over the congestion in the nares, and, so far as my observation goes, it seems to merit its reputation. Gelsemium and aconite have their best effects in the more febrile and neuralgic forms of coryza, and hence are indicated in such instances. Tincture of gelsemium may be given in doses of five to fifteen grains, according to the age, and aconite in doses of one-tenth of a grain of the extract, every hour, until its effect is noticed.

I would venture to suggest that antipyrin in five grain doses is worthy of trial in the febrile stage of coryza, but a limited experience would prevent my urging it strongly.

The local treatment of the nares and fauces forms an important element in the management of these cases of naso-aural disease, because it is necessary to restore the normal calibre of the nares and Eustachian tubes. Syringing the nares, in all forms, is to be condemned as too irritating and, hence, liable to provoke further disease. Under this head is also to be placed the nasal douche; this may give relief, if properly used, but it is dangerous from the risk incurred by its use, of forcing fluids into the middle ear.[1] The local treatment should consist in sprays from the hand atomizer, and, in some cases, in applications made directly to the nares by a tuft of cotton, on the cotton-holder, under good illumination by the forehead mirror.

It is of the highest importance not to irritate the already excited mucous membrane of the nasopharynx. Its erectile nature and the relation the nasopharyngeal mucous membrane sustains to the Eustachian tube and middle ear, and the ready transmission of disease from the former to the latter must not be forgotten. It has been stated that the Eustachian tube opens at each act of swallowing, and some claim that it is opened at each respiration. The air which enters the tympanic cavity at such times maintains the equilibrium of the membrana and the ossicles. If such aëration of the tympanum stops for even a short time, the ear is quickly placed in the first stage of deafness. The object of the physician should be to prevent this, or, if it ensue, to restore the normal ventilation to the middle ear as soon as possible.

In infants and very young children we must be on the lookout for the effects of chronically stopped nares. For, undoubtedly, chronic aural catarrh and consequent deaf-dumbness, originate in infants from neglect of close observation of, and attention to, the inflamed nasopharynx and middle ears. In many cases this might be prevented by prompt and simple treatment. Mouth-breathing, which tends to induce collapse of the Eustachian tube and membrana tympani, must be corrected. All these early conditions of closure of the Eustachian tube, and the consequent collapse of the membrana in children and adults, can be overcome by some form of aërial inflation of the tympana.

The simplest for all cases and the most efficient for children is Politzer's inflation or some of its modifications, by means of the hand-bag or air-douche as it is sometimes called. In adults the Eustachian catheter can be employed if only one ear is affected, and if it be desired not to inflate the well ear, or if the air-douche fail. Politzer's inflation of the tympana consists in forcing air from a specially arranged air-bag, held in the hand, into the nasopharynx through the patient's nose at the moment of swallowing, for at such a time the nasopharynx is shut off from the fauces, and the Eustachian tubes are drawn open by the elevation of the velum. It can be performed by means of a piece of rubber tubing. In order to insure swallowing at the proper moment, the patient is told to swallow a little water previously taken into his mouth. The same object can be effected in many cases by the simple act of phonation of the broad sound of *a*, or by simply puffing out the cheeks, according to the suggestion of Dr. Holt, of Portland, Maine. If little children cry, the operation is thereby aided by the elevation of their palates. The use of the Eustachian catheter is a matter of too much importance to be described in a short time. None but the specialist is liable to be called upon to use it often, if at all.

Successful inflation of the tympana is a most important and valuable acquirement for the physician, and of great assistance to the patient, for, by this means earache can often be promptly stopped, dulness of hearing overcome, and an attack of extravasation and inflammation in the drum cavity warded off. If vertigo is present, especially in the acute forms of otitis and rhinitis, it can often be entirely relieved by a thorough inflation of the tympana, since by this means the equilibrium of air on each side of the membrane is restored, and the pressure of the foot-plate of the stapes upon the endolymph and arachnoidal fluid is taken off.

The local treatment of the nares in acute and chronic rhinitis is best attained by the use of sprays thrown by the hand atomizer. Thus, in the acute forms, sprays of fluid cosmoline, and of the distillate of witch-hazel, one part to three or four of water, may be employed. In the more chronic or subacute forms, Dobell's solution may be sprayed into the nares, and this followed by spray of fluid cosmoline. The fauces may be touched with a weak solution of tannin and glycerine, or some of the weaker preparations of the Rhus glabrum, or common sumach. I must speak most positively against the use of nitrate of silver in chronic hypertrophic catarrh of the nose and throat. I shall not endeavor to mark out a line of treatment for the chronic forms of rhinitis, when connected with aural disease, as in this stage the general practitioner will often find that he lacks time to cope with them.

In the acute stage great comfort is given to the patient by insufflations of the compound bismuth powder, *e. g.*:

℞.—Morph. sulphat.	. . . .	gr. x.
Sodii bicarb.	. . . .	gr. xv.
Bismuthi subcarb.		
Acaciæ pulv.	. . . .	āā ʒij.

M. and powder most finely.

This may be used in small pinches several times daily in adults, during the most acute stages of coryza. Of course, care must be exercised in its use, both in adults and children, on account of the risk of poisoning by the

[1] If, however, solutions of salt in water are thus thrown into the nares and nasopharynx, they should be what are known as "blood solutions"—*i. e.*, fifty-six grains to the pint in strength. If not, endosmosis or exosmosis is excited in the nares, according to the less or greater strength of the solution.

morphia in it. Solutions of cocaine (four to six per cent.) seem to allay the nasal irritation in severe cases. This may be instilled into the nares, or painted over the turbinated bones with a hair pencil.

If earache is present, these applications to the nares, together with *inflation of the tympana, if done soon*, are often sufficient to allay the suffering by reëstablishing the normal ventilation of the nares, Eustachian tubes, and the middle ears. If this procedure be insufficient for relief of the pain in the ear, and suppuration seem imminent, we have a choice of a number of methods. Dry heat is always better in the treatment of earache than moist heat, as the latter is too macerating and threatens the integrity of the drum. Hence poulticing the ear must be strictly prohibited. Warm water irrigation may be tried, and will often give relief; but it is inconvenient. I have succeeded in allaying earache, due to coryza, by applying in front of the auricle a flat, four-ounce bottle filled with very hot water. Most instillations are dangerous from their liability to irritate the canal and membrana, and hence make matters worse. Laudanum and warm water or warm alcohol are among the most likely to give relief.

If the pain be not very severe, a 10 to 20 per cent. solution of cocaine or 5 per cent. solution of brucia applied in the auditory canal may control it. If the suffering grows intense and a suppurative process threatens, leeching may be resorted to—*i. e.*, one to three large European leeches may be placed *in front* of the tragus or under the lobule, but never in the meatus or in the auditory canal.

It is also claimed by many that $\frac{1}{20}$ to $\frac{1}{10}$ gr. of sulphide of calcium three or four times daily, will control the tendency to suppurate, and therefore, when combined with aconite in small doses ($\frac{1}{10}$ gr. of the extract) three or four times daily, given at the outset of the disorder, will tend to allay the pain of tympanic inflammation. In some cases I have thought I derived aid from this much talked-of anti-suppurative medicine when I have been able to give it at the beginning of the symptoms.

If, notwithstanding all the efforts of the surgeon to mitigate the ear pain and prevent suppuration, the latter ensue, and rupture of the membrana tympani be imminent, paracentesis of the latter should be performed. This will usually relieve the pain at once, give vent to he accumulated muco-pus, and prevent an extensive or an entire sloughing of the membrane. It is to be performed only under perfect illumination of the auditory canal and membrana by the forehead mirror and by an experienced hand. The instrument must be a slender shaft with a delicate needle-like blade, and the most prominent point on the membrane must be chosen for the puncture. This will usually be the lower and posterior quadrant.

After the paracentesis of the membrana there is an escape of pus or muco-pus from the tympanic cavity. The pain now ceases, either immediately or in the course of a few hours, according to the less or greater severity of the inflammation in the mucous membrane of the drum. The discharge usually continues, and would become chronic were it not carefully treated by astringents and antiseptics. In order not to favor suppuration, aqueous solutions are not as valuable as powders. Hence, the dry treatment—*i. e.*, clearing the ear by mopping with absorbent cotton and the insufflation of finely powdered boric acid, is preferable to the moist treatment of otorrhœa by syringing and the instillation of astringent drops. The treatment, furthermore, whatever it be, is more efficacious if carried out by the surgeon rather than by the patient. Hence, the latter may be obliged at first to visit his doctor daily, if his physician cannot go to him. Prompt treatment, therefore, of a "gathering" in the ear will be just as satisfactory as prompt treatment of an abscess elsewhere, and as by the latter procedure sloughing and burrowing are prevented, so in the ear total loss of the membrana and ossicles, with impairment of hearing and an offensive otorrhœa, are obviated by prompt recognition of the nature of the aural disease and a rational treatment of the same.

ORIGINAL ARTICLES.

THE PHYSIOLOGICAL ACTION OF THE HEAVY OIL OF WINE.

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The heavy oil of wine, as one of the component parts of Hoffmann's anodyne, occupies a prominent but an unrecognized place in our list of remedies.

According to the U. S. Dispensatory, this agent is formed by the distillation of alcohol with a large excess of sulphuric acid. The product of the distillation is generally in two layers, one of which contains the heavy oil of wine, while the other layer consists of sulphurous acid. For the purpose of separating any ether which may be in the oily layer, it is exposed to the air for twenty-four hours, when it is washed with water, thereby removing any sulphurous acid which may contaminate it, and after these two processes have been accomplished the oil is ready for the market. Notwithstanding the fact that Hoffmann's anodyne is so frequently used, and has for so long a time occupied a prominent place in the household, and a useful one in the profession, curiously enough, nothing seems to have been done toward increasing our knowledge of its composition or of its physiological effects. Its formation is generally accounted for in the following manner:

When sulphuric acid and alcohol are added together, one of the results of their union is sulphovinic acid ($C_2H_5HSO_4$); but if the sulphuric acid be in great excess the sulphovinic acid is partially decomposed, forming the heavy oil of wine.[1] The mixture now consists of ethyl-sulphate, $(C_2H_5)_2SO_4$; ethyl-sulphite, $(C_2H_5)_2SO_3$; and ethyline, C_2H_4. Two forms of this ethyline are known, viz., etherin and etherol, and the mixture of these two separate forms of ethyline alone, forms the *light oil of wine*.

The same doubt seems connected with the specific gravity of the heavy oil. Sadtler believes 1.133 to be the most correct estimation of its specific gravity yet made.

[1] Dr. Squibb believes the heavy oil of wine to be a sulphovinate of a hydrocarbon radical.

At the suggestion of Dr. H. C. Wood, I performed the following experiments in order to discover what part was played by the oil when administered with alcohol and ether in Hoffmann's anodyne. Of course, under the latter circumstances the action of the oil is entirely subservient to and masked by the more rapidly acting and more diffusible stimulants; but the results of the following investigations were, at least, marked enough to show that the drug before us occupies no mean position in the anodyne mixture. Starting with the object of seeing in what manner the circulation is influenced, and beginning with the heart of the frog, the following results arose from my investigations:

When the isolated heart of the frog is placed in the pure oil the rapidity of its movements is increased very distinctly (about ten beats more a minute) for some moments; following this stage of stimulation comes a condition of exhaustion or depression, during which the cardiac movements are imperfectly performed, with a constantly increasing feebleness, and finally the viscus stops in diastolic collapse.

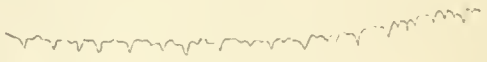
Seven other experiments with the isolated heart now followed, a weaker solution of the oil being used in each experiment, and it became evident that the duration of the period of stimulation was in inverse ratio to the size of the dose, so that the seventh heart had its increased rapidity of movement continued for a longer period than any of its predecessors. The action of the drug when dropped in varying strengths upon the heart when lying in its pericardial sac was identical with its effects upon the isolated viscus, so far as the eye could discern. Unfortunately, any study as to the relative propelling power of the heart when under the influence of the oil was impossible, owing to the fact that no frogs of sufficient size were obtainable; the hearts I was obliged to use being too small for use in any of the so-called frog manometers. It is evident, however, that in small and ordinary quantities the heavy oil of wine is a cardiac stimulant, while overwhelming doses are needed to produce cardiac depression.

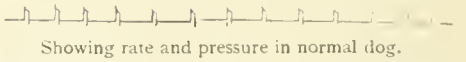
DOG; WEIGHT 20 POUNDS; CURARIZED; ARTIFICIAL RESPIRATION.

Time.	Drug.	Pressure.	Pulse.	
12.20	.....	134	186	
12.20.10	2 min.	134	192	Injection begun.
12.20 20	.....	146	192	Injection ended.
12.20 30	.....	144	192	
12.20 40	.....	144–150	186	
12.20.50	.....	130–150	240	
12.22	.....	164	186	
12 22.10	4 min.	150–180	192	Injection begun.
12.22.20	.....	180	180	
12.22.30	.....	170–160	198	Injection ended.
12.22.40	.....	160	194	

The experiments made on the higher animals—the dog, for example—showed that the drug affects the mammalian circulatory system in much the same manner as it does that of the frog. It will be seen from the accompanying table and tracings that small doses of the oil (2 to 7 minims) increase pulse-rate, force, and pressure, while larger doses (1 to 2 c. c.) decrease pressure to a considerable extent; exceedingly large doses seem necessary to depress the heart. Indeed, the perfect vasomotor palsy resulting from large doses of the oil would seem to point to the conclusion that the heart stops rather because its vital centres do not receive a sufficient quantity of fluid for their maintenance, than to a direct depressing action of the drug on that viscus, for it has already been shown that overwhelming doses are necessary to depress the heart of the frog, and one of

TRACING NO. 1.

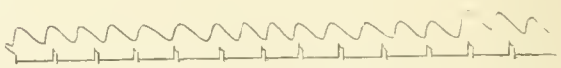




Showing rate and pressure in normal dog.

the subjoined tracings shows how much power remains in the heart even when the *arterial pressure* is not more than 5 mm. above the abscissa line.

TRACING NO. 2.



Showing rate and fall of pressure produced by 10 c. c. of the oil injected into jugular. The increased height of the pulse wave over the normal is always present when the vaso-motor system is depressed and the heart is not.

A brief glance at the experiments so far performed shows that this oil produces on the circulation the following effects:

1st. Small doses increase arterial pressure.
2d. Large doses decrease arterial pressure.
3d. Small doses increase rate.
4th. Very large doses are required to diminish rate.
5th. Small doses increase force.
6th. Large doses do not decrease force.
7th. That it requires very large doses, indeed, materially to decrease force.

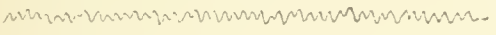
The questions now arising, limit themselves to the consideration and the elucidation of these results, and each one was examined in the above order and individually.

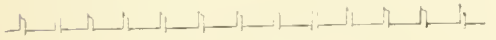
It was proved, by careful and repeated observation, that the rise in pressure following the administration

of from 2 to 7 minims of the oil was due in no way to a respiratory action of the drug, for in the curarized animal the rise was as great as in the dog, the respiratory functions of which were not interfered with, and there are, therefore, but three modes of explaining this increase of pressure. Either the vasomotor system is stimulated centrically or peripherally, or cardiac force is sufficiently increased to produce a general rise in pressure. As every one knows, this latter condition is scarcely ever met with in an unalloyed state, a vasomotor stimulation generally accompanying increased cardiac force.

Few drugs also produce peripheral vasomotor excitability, without affecting the higher vasomotor centres in the fourth ventricle. It was proved by two experiments in which the spinal cord of a dog was severed high up in the cervical region, thereby causing a complete cutting off of any impulses from the centres, that this rise was due to a centric action of the remedy, probably aided by the cardiac stimulation, for under these circumstances no rise of pressure took place when the drug was given. The decrease in arterial pressure produced by large doses of the drug evidently depends, in great part, on a peripheral as well as a centric action of the oil, for in the dog in which the cord was intact the fall was not as great as in the animal the cord of which was divided. It would, therefore, seem probable that the drug in large doses affects the centres to but a slight extent, for if its dominant action under such circumstances was centric, we should expect to find as great a degree of fall when the cord was intact as when it was cut. The extreme difficulty surrounding all efforts to decide whether the peripheral vasomotor action of a drug is alone the cause of a fall of pressure, prevents our absolute decision on this point. While we cannot, therefore, state that the heavy oil of wine paralyzes the centres or periphery, singly and individually, we can rest assured that it does, in large doses, depress the peripheral ends of the vasomotor nerves. (See tracings numbers 3 and 4.)

TRACING NO. 3.

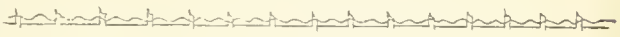




Cord cut: normal tracing.

In regard to the increase in pulse-rate following small and moderate sized doses of the oil, we find that it is probably due to a direct cardiac stimulation, rather than to any depressing action on the inhibitory nerves. This is pointed to by the fact that the rapidity of movement in the frog's heart when isolated was increased by the drug, and also by the fact that section of these inhibitory nerves invariably caused an increase in rate of so decided a character, that any previous vagal depression could hardly be present. Further than this, other experiments showed that when section of the vagi and cord was

TRACING NO. 4.



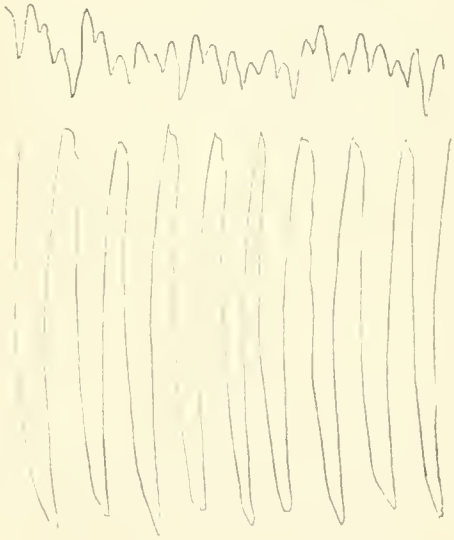
Cord cut: showing complete vasomotor palsy produced by 4½ c. c. of the oil.

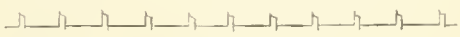
synchronously made, thus leaving the heart free from all nervous influences of a centric character, the same increase in rate took place as when the cardiac nervous system was intact.

The decrease in pulse-rate produced by enormous doses of the oil is also due to a direct effect upon the heart itself, for it occurred both when the vagi were cut and when they were whole; the same condition also obtained when the cord was cut. Section of the vagus during the period of decrease in rate caused but a momentary and transient quickening.

When small doses have increased cardiac force, the force is increased by a direct action on the heart muscle or its ganglia; or, in other words, the stimulation which increases rate also increases force. This is rendered the more likely by the fact that cardiac

TRACING NO. 5.



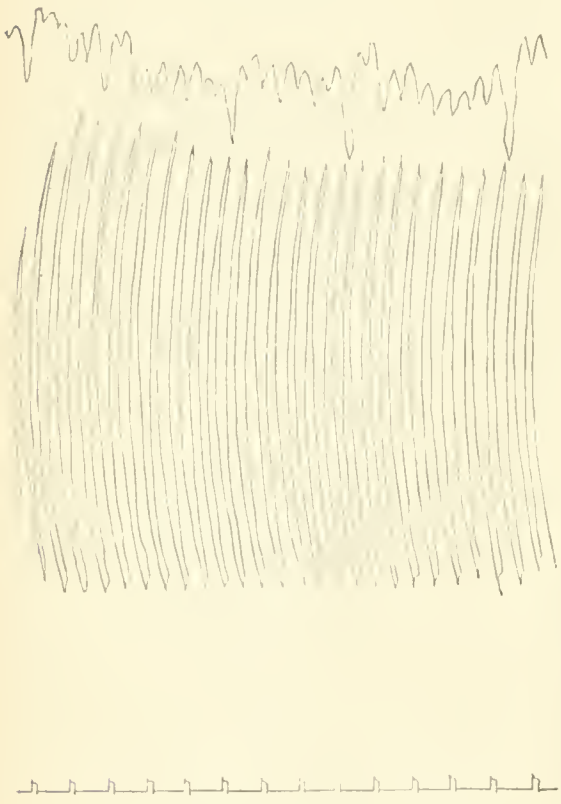


Normal tracing.

force remains almost as long as cardiac rate is increased, or at least until the rapid rate is no longer one of power, but of weakness.

Very large doses cause decrease in heart power by a direct action on the heart muscle, and by producing such a general vasomotor palsy that the heart cannot obtain a sufficient quantity of blood to enable it to drive out through the hungry bloodvessels a fair-sized pulse-wave. The heavy oil of wine in the dose of 3 c. c. to a very strong and powerful dog weighing 25 pounds, increased the force and rapidity of his respirations very markedly, as may be seen from tracings numbers 5 and 6. Violent spasmodic efforts at forcible breathing came on after the administration of a

TRACING NO 6.



Showing increased respiratory rate after 3 c.c. of the oil.

second dose, but as these severe respiratory changes did not occur in other dogs under like circumstances, I believe them to be due to the plugging up of the minute bloodvessels near the respiratory centres by minute oily emboli.

On the nervous system the drug seems to exert but little influence, for even when given in enormous doses to frogs no nervous phenomena were developed, and careful electrical studies on the nerves and muscles when in contact with the oil failed to show any signs of action of the drug.

While the writer was unable to demonstrate any nervous effects produced by the oil of wine, he does not wish it thought that he denies that such influence exists, although he believes it to be very slight indeed. From his experiments it seems probable that

First. The belief in heavy oil of wine being the quieting agent in Hoffmann's anodyne, is fallacious.

Second. That the calmative effects of this mixture depend largely on the ether, rather than on the oil.

Third. It would seem probable that in Hoffmann's anodyne we possess an agent in which there are linked together three drugs of undoubted power, each one of which successively substitutes the other, stimulating the system in the order here named, viz., ether, alcohol, and the heavy oil of wine.

On animal temperature, as ascertained by the thermometer in the rectum, no effect is produced, even when the arterial pressure is very low. That large doses of the heavy oil of wine are in no way possessed of toxic effects, was proved by the fact that 30 c. c. of the drug given by the mouth to a small dog, weighing 12 pounds, failed to produce any apparent symptoms, except, perhaps, to stimulate him slightly. While the odor of the oil is penetrating, it is by no means disagreeable, and it possesses but little taste other than that of the presence of an oily substance.

AN UNUSUAL GUNSHOT WOUND OF THE THORAX.

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A FEW weeks ago I was called upon to make an autopsy in which death had resulted from a gunshot wound received under the following circumstances:

Two lads were struggling for the possession of a pistol, one having hold of the barrel of the weapon, the other the handle. The boy holding the barrel gave a sudden jerk, pulling the pistol toward his breast, and the weapon was accidentally fired just at the moment it touched his body. The pistol was an old-fashioned muzzle-loading weapon, with a barrel six inches long, and a calibre of forty-eight. It was loaded with a heavy charge of powder and a slight paper wad. The body was that of a slightly built boy of fourteen, fairly well nourished, and with a rather thin skin.

There was a large gaping wound of the thorax extending from one and a half inches below and to the median line of one nipple to a corresponding point on the other side. The wound was sharp, clean-cut, and had all the appearances of an incised wound, except in the middle, just over the sternum, where both the upper and lower edges were lacerated to a slight extent. There were no powder marks on the skin, the wound was blackened at the point of laceration, and only slightly so elsewhere. The skin was torn loose from its connection over a space six inches in diameter, its internal surface and the torn muscle and fascia blackened and burned with powder.

The sternum was extensively comminuted; there was a transverse fracture across the lower third of the gladiolus, and numerous other longitudinal fractures extending from this. The bone looked as if it had been laid flat and struck with a heavy hammer. The cartilages of the fourth and fifth ribs on either side were torn from their connections with the bone. At the point of the transverse fracture there was an irregular hole in the bone half an inch in diameter. On the internal surface the periosteum was torn from the bone in large shreds and blackened. The anterior surface of the pericardium was torn away, and a large

ragged opening made into the heart. The right auricle and ventricle were laid open, and there was an opening in the interauricular septum half an inch in diameter. The edges of the heart wound were blackened, and in the wound were found small irregular bits of bone, some of which had penetrated into the left auricle. Both pleural cavities were opened, and contained a considerable amount of blood. There was no injury to the lungs or to the posterior pericardium. The diaphragm was intact. There were several ruptures in the left lobe of the liver, two on its upper surface, and five on the lower surface opposite to those on the upper. All of these ruptures extended from one-quarter to a half inch into the parenchyma of the organ. A very slight quantity of blood was found in the abdominal cavity. All of the organs were pale and exsanguine.

When he was shot the boy had on a heavy woollen shirt, in which a ragged orifice with burned edges was found. When shot he uttered a loud cry, made a few steps forward, and fell dead.

In this case it is probable that the great laceration of the skin, and parts beneath, was due to the expansion of the gases of combustion beneath the skin. Most books on medical jurisprudence speak of the fissuring of the skin from pointed projectiles, and from expansion of gas when the weapon is held close to the body. I have not found a case, however, in which the fissure of the skin was so extensive, straight, and sharp, as in this case. The ruptures in the liver show how great the force of concussion must have been. The laceration of the heart was due, in great part, to the pieces of bone which were forced in, but the tearing effect of the explosion evidently made itself felt here also.

REMARKS ON THE VALUE OF ANTIPYRIN IN PUERPERAL FEVER.[1]

BY JOHN BLAKE WHITE, M.D.,
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SERIOUS structural changes are to be dreaded when continued pyrexia obtains in any form of disease, but in none is the danger greater than in puerperal fever. The wet pack, cold sponging, and cold coil, in local inflammatory conditions, are, indeed, valuable means for reducing temperature and allaying inflammation, but they possess features of objection, because of the danger of disturbances to which they often subject the patient.

The effects produced upon the system are, nevertheless, the same as when a high temperature is gradually reduced by internal medication.

The reduction of temperature should be effected gradually, however, if satisfactory and safe results are to follow. A review of the following cases of puerperal fever treated with antipyrin will demonstrate its value in relieving the hyperpyrexia present, and thus contributing to their successful termination.

CASE I.—Mrs. B., aged twenty-eight, primipara, confined May 2, 1885. Labor natural, convalescence advanced satisfactorily until the fifth day, when the patient had a severe chill, followed by fever. Pulse 135, temperature 105°. Severe abdominal pain was complained of, and the patient assumed the prone position with thighs flexed. On examination the abdomen was found tympanitic, the most careful manual investigation producing great pain. The face was flushed and anxious, and the patient complained of severe headache and mental confusion. There was a partial arrest of the lochia and some fetor. The milk secretion was checked; carbolized vaginal douches were ordered. Warm turpentine applications made frequently to the abdomen. Opium to relieve pain prescribed, and fifteen grains of antipyrin given every three hours until three doses were taken. This treatment produced strikingly satisfactory effects, and in due time the patient made a good recovery. As soon as the pyrexia was overcome with the antipyrin, the lochial discharge was fully reestablished, the milk returned, and no unpleasant result whatever followed.

CASE II.—Mrs. D., aged twenty-eight, primipara, confined February 23, 1885. Labor tedious, followed by *inertia uteri* during the second stage. Labor was terminated with the forceps. Patient progressed favorably until the fourth day, when she was seized with a severe chill, followed by high fever and peritonitis. This condition modified both the milk secretion and the lochial discharge, the latter emitting fetor. The same general treatment was carried out as in the preceding case. Antipyrin was given in the same dose at regular intervals of three hours until the fever was controlled, and in due time a most satisfactory convalescence was the result.

CASE III.—Mrs. J., aged twenty-four, multipara, confined March 29, 1885. Labor natural. Convalescence progressed until the sixth day, when late at night I was hastily summoned and found the patient delirious with a temperature of 105.2° and pulse proportionately rapid, skin hot and dry. Abdomen tympanitic, lochia arrested and milk suppressed.

Opium was given to relieve pain, hot turpentine stupes applied to the abdomen, carbolized douches ordered, and antipyrin gr. xv administered every two hours until three doses were taken. The temperature declined under the treatment. For several days the fever returned with the other threatening symptoms, which were as readily combated with the antipyrin as at first. As soon as the fever declined in each instance the lochia returned, and the secretion of milk was reestablished, after which convalescence progressed satisfactorily.

CASE IV.—A case of measles complicating puerperal fever. Mrs. W., aged twenty-four, primipara, confined June 4, 1885. Labor natural. Convalescence progressed until the fourth day, when severe abdominal pain was complained of, preceded by a rigor. When the patient was seen the abdomen was hot, intumescent, and tympanitic; the patient's position was symptomatic, reclining on the back with thighs flexed and body bent forward. The expression was anxious, face flushed, respiration painful, headache intense. She complained of severe sacro-lumbar pain and retention of urine. The temperature was 104.5° and the pulse 140. Respirations were not counted, but were rapid and shallow in character. The lochial discharge was suppressed and the secretion of milk also arrested. Hot turpentine stupes were directed to be frequently applied to the abdomen until some relief from pain was experienced. Opium was given in appropriate doses. Carbolized vaginal douches were ordered and antipyrin administered in gr. xv doses every two hours until three powders were taken. My next visit was made soon after the third powder was administered, and the temperature was found reduced to 102°, with every other symptom less urgent.

Fifth day: Temp. 101°; pulse 100. The patient's condition was in every respect more satisfactory. She still

[1] Read before the Manhattan Medical and Surgical Society.

experienced some pelvic pains, and the opium was accordingly continued at longer intervals. The lochia were partially restored and the milk secretion was renewed. The antipyrin was given in the same dose once every five hours and vaginal douches continued.

The patient was favorably progressing up to the eighth day, when I was hastily summoned and found symptoms of peritonitis again pronounced. The temperature ranged as high as 105°, and the pulse was correspondingly rapid. I suspected her guilty of imprudence, and soon learned that the patient had been persuaded by a friend to get up and exert herself in order to "encourage her strength."

Although I had cautioned against such imprudence, when my back was turned the patient had yielded to other advice with the result stated. This second seizure very nearly proved fatal. All of the dangerous symptoms returned to an alarming degree. The same treatment already detailed was carried out and antipyrin again administered as before. On the following (9th day) the temperature was 99.5°, the pulse 100, and every condition of the patient improved. On the 10th day the bowels were moved by an enema and convalescence seemed assured. I would have had, in all probability, no further trouble with the case but for the following unfortunate occurrence.

The patient's sister came from Philadelphia to be present during the confinement, and brought her little son, who was taken ill at this juncture with a pretty severe attack of measles, requiring his mother's constant attention. My patient would not consent to her sister's returning home while the child was so ill, and I, of course, advised against his being exposed to the danger of so long a journey in that condition. Although isolation was as studiously practised as possible, the contagion nevertheless found its way to the sick-room, and the puerperal woman was taken ill with the measles. The temperature increased to 105°, and when the eruption appeared it manifested itself profusely over the face, trunk, and extremities. The usual catarrhal symptoms were pronounced, and the paroxysms of coughing caused severe abdominal and thoracic pains. The pulse was quite rapid, face very much flushed, and the patient's general condition seemed so critical that I became very anxious of the result.

Antipyrin was again administered as before with striking effect. The temperature and pulse readily declined. The next morning the patient's condition appeared less grave. Antipyrin, however, was continued night and morning in doses of gr. xv throughout the pyretic period, and appeared to exert a wonderful antipyretic influence. The infant was also taken ill with the measles, but made as good a recovery as the mother.

I have had the same satisfactory results follow after using this drug in other cases of like character, but these instances have been selected for report as characteristic cases, and are sufficient to prove the value of antipyrin in puerperal fever, as well as to place it among the most safe and useful antipyretic remedies in all fevers.

I have had no reason to think that the remedy exerts any direct influence upon the uterus by which the lochial discharge is restored when suppressed, but it has seemed that this good result was effected secondarily through the reduction of the high temperature which is always present in these cases. It appears to me that the pyrexia in puerperal fever checks involution, and an arrest of the lochia follows. The discharge becomes reëstablished upon the reduction of temperature brought about, I think, by the sedative effect of antipyrin upon the circulation, and its effect upon the vasomotor system, dilates the capillaries and modifies or removes local congestion.

I admit the difficulty of determining as yet how the antipyrin acts, but it cannot be doubted that it exercises a bradycrote influence upon the circulatory system. Dujardin-Beaumetz thinks the toxic effect of antipyrin the same as that of resorcine or carbolic acid, though less manifest than in the two latter drugs. He says that it produces, in overdoses, tetanic and paralytic symptoms, analogous to those caused by strychnine, and declares that it cannot be doubted that the drug acts upon the cerebro-spinal axis and probably lowers temperature by effecting a modifying influence on the nervous heat centres. Or, does the remedy enter the blood and arrest fermentative processes excited therein by a specific fever germ, and thus control high temperatures?

Antipyrin is a product of destructive coal tar distillation, and is chemically known as *dimethyloxychinine*, approaching quinine in composition, but possessing a far less bitter taste and more positive antipyretic effects. The preparations of tar which have been heretofore used medicinally, are well known to exercise a controlling effect upon fermentation existing along the digestive tract. Dangerous collapse has been attributed to the drug, but I have witnessed no ill effects from its use, though I have frequently prescribed it in many fever cases. From the fact, however, that overpowering collapse has been said to threaten when it is employed with digitalis, I am inclined to believe that its action is also that of a cardiac and circulatory sedative. It does certainly reduce the force and frequency of the heart's action, which may explain the condition of collapse supervening when these remedies have been combined in prescription. As it does not seem to be cumulative in its effects, no accident, so far as I know, has followed the use of antipyrin prescribed alone and in appropriate doses at regular intervals, as already stated.

My experience with the remedy, in both hospital and private practice, in the treatment of many fever cases, has taught me that it should not be combined with any remedy which acts as a sedative upon the circulatory organs. Doses of fifteen grains or twenty grains, repeated in one, two, or three hours, *pro re nata*, appear to be the only safe way in which to prescribe it. I have seldom found it necessary to give more than three or four doses of the amount cited, and this repeated at such stated intervals is found to reduce the temperature effectually and sometimes permanently from 105° to 100° or less. If fever should recur, this dose continued once or twice daily until convalescence is advanced, will prove a useful adjunct to other treatment.

Since the preparation of this paper, I have read with much interest an article by Dr. A. A. Smith,[1] in which he bears testimony to the value of antipyrin, "as the most useful and safest antipyretic yet discovered if used in not too large doses, and if in connection with its use cardiac stimulants be given when there is any suspicion of cardiac enfeeblement."

The only cases in which I have found it necessary

[1] Medical Record, Feb. 27, 1886, p. 238.

to combine any stimulant with antipyrin, have been such as would have demanded stimulation under ordinary circumstances, from the debility consequent on the affection itself, and not because of any depressing influence incident to the employment of the drug.

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MEDICAL PROGRESS.

Bacteriotherapy of Phthisis Pulmonalis.—Dr. Ballagi has carefully followed the bacteriotherapeutic details advised by Cantani in eight cases of advanced phthisis with moderate fever; many bacilli in the sputa. During the inhalations the sputa were daily examined for bacilli and bacterium termo. The following results were noted:

1. In none of the eight patients was a diminution of the bacilli demonstrable.

2. Fever, cough, and other symptoms were as troublesome during the four or five weeks in which the inhalations were given as before.

3. No arrest or regression of the phthisical process was at any time demonstrable by physical examination.

4. In one patient diarrhœa occurred, which ceased only upon stopping the inhalations.

5. After ten to fourteen days the patients strongly objected to the inhalations, and only four held out beyond four or five weeks. The nauseating smell and taste of the (freshly prepared) solution of bacterium termo decreased appetite, and the weight of patients also decreased somewhat.—*Centralb. f. d. gesammte Therapie*, May, 1886.

The Bronchial Secretion as an Absorbent.—In January last, Dr. B. W. Richardson, while suffering from a bronchial cold, accompanied with rather free secretion from the bronchial surface, discovered on the morning of the 18th that the secretion had a peculiar and fetid odor. He detected this first in the pocket handkerchief he was using, and surmised at first that the odor might by some accident have come from it, although it was quite clean. He therefore obtained another handkerchief which certainly had no odor, but the result was the same whenever the bronchial secretion came in contact with it. Fresh cotton-wool receiving the secretion had also the bad odor imparted to it. He would have felt anxious but for the circumstance that he recognized the odor of some decomposing animal matter which he had detected on the table of the laboratory on the preceding day when at work there. He sought, therefore, for the offending cause, and found it in a Leyden jar, which contained a portion of the brain of a sheep that had undergone decomposition, and that had not been removed. He closed the jar, took a carriage drive into the suburbs of London, indulged in a good brisk walk, and returning home, found the expectoration free of all fetor. The next morning, the expectoration being still free of fetor, he reopened the jar, and breathing near it for a short time, found that the secretion was rapidly reinfected, and that it was just as easy to communicate the odor to the expectoration as it was to the moist hand, to moistened cotton-wool, or to a watery solution of albumen.

This little observation seems to be of moment as explaining the mode in which some infections are directly communicated. When we consider the large area of the bronchial surface, and its position in relation to the blood, we can easily see how the whole volume of the blood may be poisoned from prolonged inhalation of air charged with putrid matter. The observation is also useful in showing how quickly fresh air, even near a large city, removes the danger. It may be that in some diseases affecting the nasal organs and upper part of the throat, the great benefit which so often accrues from even a few days' change into pure air at the seaside, may be due to the deodorizing effects of the air on nasal and bronchial secretions in a state of partial decomposition.—*The Asclepiad*, April 25, 1886.

Climacteric Diabetes in Women.—In an article with this title Lawson Tait says: Roughly speaking, the conclusions that I have arrived at concerning this affection are that in the great majority of cases of eczema of the vulva at the climacteric period, the disease is due to the presence of sugar in the urine. I have not yet come across a case of this kind in which, having examined for sugar, I have not found it. The disease seems to begin at or near the arrest of the menstrual functions, and to extend over a period of several years, then terminating in all probability by nature's own process. The sufferings of the patient are very much diminished, and probably the duration of the disease is shortened, by the liberal administration of opium, whilst the local trouble is best mitigated by ointments containing such substances as will arrest the process of fermentative change in sugar. So far, the best substance that I have found for the purpose is the old-fashioned hepar sulphuris.—*The Practitioner*, June, 1886.

A Study of the Senile Testicle.—In an inaugural thesis thus entitled, M. H. G. Arthand presents the following conclusions:

1. At about the age of fifty years the human testicle is subject to a gradual regression which induces atrophy.

2. This atrophy is characterized by a marked pericanalicular sclerosis and by the disappearance of the epithelial element.

3. As a result of the sclerosis there appear atrophy of the seminiferous tubules, varicose dilatation of the ducts of the epididyma, and later, the formation of cystic cavities.

4. The sclerosis and its accessory phenomena may be regarded as the result of vascular lesions and of the insufficient nutrition of the seminal glands in advanced age.—*Annales des Maladies des Organes Génito-Urinaires*, May, 1886.

Nature and Cause of Internal Rotation.—Dr. D. Berry Hart thus formulates a law governing the internal rotation of the fœtus:

1. Whatever part of the fœtal head or trunk first strikes a lateral half or lateral part of the sacral segment is rotated internally to the front, and in the direction opposite to the lateral half or lateral part of the segment so acting.

2. No part of the fœtus is ever rotated directly into the hollow of the sacrum. The passage of the occiput into the hollow of the sacrum in its so-called posterior rotation is exactly equivalent to the passage of the sinciput into the hollow of the sacrum in normal rotation,

and should be excluded from descriptive terminology, as the latter is.

3. The direction of rotation may be predicted in any case by noting what part first strikes a lateral half of the sacral segment.

This view of rotation gives, in my opinion, a more coherent idea of all the rotations than those based on the shape of the head or pelvis only. I do not deny the influence of the shape of the internal surface of the pelvis, but I deny that it alone can determine rotation.

It seems to me, also, that we here see an explanation of the pelvic inclination, Roederer obliquity, Solayres obliquity, and general shape of head and body of fœtus.

The pelvic inclination, as we term it, gives us, by its slope, a short anterior pelvic wall, and may be looked on as due to a slicing away, as it were, of part of the anterior pelvic wall. The kidney shape of the brim, such that the head there does not fully occupy it, and lies with the Solayres' obliquity, is necessary for the distention of the bladder during pregnancy; while the shape of the occiput, chin, neck, and sternum allows of Roederer's obliquity in head cases, or extension in face cases, so as to make a part, either occiput or chin, usually lead during labor. The short anterior pelvic wall and oblique and deep position of a part of the fœtus (occiput, chin, breech) bring necessarily the fœtal part lying anteriorly at the brim early within the reach of a lateral portion of the sacral segment—*i. e.*, tend to cause its early rotation.—*Edinburgh Medical Journal*, May, 1886.

Nitrite of Amyl in Whooping-cough.—At a recent meeting of the Philadelphia Neurological Society, Dr. Morris Lewis stated that he had exhibited nitrite of amyl with advantage in a case of whooping-cough. The drug was diluted with three times its bulk of ether, and the finger, wetted with the mixture, held before the child's nostrils at the first respiratory effort. The frequency of the paroxysms was not lessened, but their severity and the attending exhaustion were greatly diminished. In the discussion Dr. H. A. Hare stated that he had once checked a paroxysm of whooping-cough by this method, and that it did not return for twelve hours, although prior to this the attacks had been of hourly recurrence.

Researches on the Biological Action of Silver.—Curci (*La Medicina Contemp.*, March, 1886) has experimented with a double hyposulphite of sodium and silver, this salt being very soluble, not coagulating albumen, non-irritant, and readily absorbable by the subcutaneous connective tissue. In frogs, silver paralyzes the excitomotor nerve apparatus of the heart, and in this way produces slowing and progressive weakening of the systole and arrest in diastole. It does not paralyze the muscular fibre. In mammals, silver acts on the bulbar vasomotor centre, at first stimulating it and therefore increasing the arterial pressure, then paralyzing it and lowering the pressure. It causes the peripheral arterial vessels to contract, but has no action on the veins. It acts on the nerves and excitomotor ganglia of the heart, gradually paralyzing them, causing the heart to become flaccid, the pulse weaker and smaller, and finally paralyzing it. The paralysis of the central vasomotor nervous system, and particularly of the pulmonary vasomotor fibres, aided, perhaps, by the cardiac paralysis, is the cause of the congestion and œdema of the lungs. Therapeutically, silver, owing to its power of diminishing and abolishing the excitability of the sensory, cerebral, and spinal nerve centres, is rationally indicated in epilepsy, locomotor ataxy, and other diseases of the great nervous centres, characterized by increased excitability. From its action on the respiratory centre, it is useful in nervous or idiopathic asthma. Since it also diminishes and abolishes the excitability of the ganglia and excitomotor nerves of the heart, it is useful in some cases of angina pectoris. It probably also calms the morbid excitability of the aortic and cardiac plexuses of the sympathetic. Curci recommends that the internal use of the nitrate should be abandoned, since in contact with the mucous membrane it is rapidly altered, and may cause the dark discoloration known as argyria, and this without its true action on the nervous system ever being obtained. He recommends instead the double hyposulphite of sodium and silver, which is very soluble in water, is not caustic, does not coagulate the albuminoids, is very diffusible and promptly absorbed by the mucous membrane and subcutaneous connective tissue. Its taste is sweet and slightly nauseous; it should be given fasting or hypodermatically. The dose by the mouth is from five to twenty centigrammes, daily, or one to five centigrammes hypodermatically. Its action on the nervous system is surely and quickly obtained, and the danger of argyria is avoided.—*London Medical Record*, May 15, 1886.

Preliminary Note on the Microbe of Rabies.—G. F. Dowdeswell writes as follows in the *Lancet* for June 12, 1886:

In view of the great interest now taken in this subject in consequence of the brilliant investigations of Pasteur, I think it desirable to take an early opportunity of stating that I have found the microbe which appears closely to constitute the virus of this disease. It is a micrococcus, not very minute, and of the usual form. It stains, however, with some difficulty; and this accounts for its having hitherto escaped observation. In the cases of dogs which I have as yet examined, its principal seat is evidently the central canal of the spinal column and spinal oblongata; thence it pervades the other tissues of the central nervous system, occurring (sometimes in vast masses) around the walls of the bloodvessels, and in some cases within the vessels amongst the red blood-corpuscles. In the cortex of the hemispheres I have found it, but in very small numbers, and, so far, only in the perivascular and pericellular lymph spaces. In the cerebellum I have not found it at all, neither have I as yet succeeded in finding it in the salivary glands. I shall shortly publish the methods by which it may be stained with certainty. I must, however, state that it does not stain by hæmatoxylin, either with or without a mordant, as asserted by Fol.[1] I have repeated his methods carefully. Neither does it occur within the nerve fibres, as he states; and, lastly, it is fully three times the dimensions which he gives. I may add that it does not occur in the same situation, treated by the same methods, in normal animals. In the one case of

[1] Comptes Rendus, Dec. 14, 1885, vol. cl. p. 1276.

a rabid dog, which I had examined to control my previous observations, the tissues were placed in alcohol so shortly after death as to preclude the possibility of the occurrence of septic organisms. In addition to which, all saprophytes, so far as yet observed, stain very readily with the usual aniline dyes, which this microbe does not. I must point out, in justice to the genius of Pasteur, that these observations on the occurrence of the microbe go far to confirm his statement of the seat of the virus; it may further afford a means of diagnosis in any doubtful case.

Treatment of Ciliary Eczema.—Hébra commends the following ointment, as applied morning and evening to the free edges of the eyelids in ciliary eczema:

Lead plaster,	
Olive oil	āā 10 parts.
Balsam of Peru	1 part.

Massoin, who cites the prescription, states that in the same affection advantageous use may be made of a one per cent. solution of benzoic acid, with which the eyes are to be frequently washed. The vehicle advised is plantain water.—*Revue de Thérapeutique*, April 15, 1886.

The Fluorides of Ammonia and Iron.—Dr. John Lucas, of Bombay, has employed the fluoride of ammonia in the treatment of hypertrophy of the spleen.

The drug appears to have antipyretic and antiperiodic properties, as proved in cases of ague. Nausea was produced at first, but afterward large doses could be borne. The appetite, after a time, improves under its use. By giving the drug after meals its nauseant and purgative actions are greatly lessened. "It certainly appears to possess the merit of excelling any other method of treatment of hypertrophied spleen with which we are acquainted." Dr. Lucas began with five-minim doses, but in future would be disposed to give twenty, or even thirty, minims well diluted. The fluoride of iron would, perhaps, be preferable to the ammonia salt, on account of its hæmatinic properties.—*The Lancet*, May 22, 1886.

Diphtheria Not a Sewer-Gas Disease.—Dr. Erwin F. Smith, in a paper on the "Influence of Sewerage Water-supply on the Death-rate in Cities" (Report of Michigan State Board of Health, 1885), makes the following statements with regard to diphtheria and sewerage.

1. Diphtheria is as frequent in the country as in the city—*i. e.*, in non-sewered as in sewered districts.

2. Diphtheria has been more frequent and fatal in certain rural districts than in any city whatsoever.

3. Diphtheria is not more frequent or fatal in sewered cities than in unsewered ones.

4. Of two given cities, equally well- or ill-sewered, diphtheria, during a long series of years, may be widely prevalent in one and rare in the other.

5. Certain sewered cities have never suffered seriously from diphtheria, while others have been afflicted very much worse in recent years (*i. e.*, since the houses have been protected from sewer air), than formerly, when, with the same sewers, but much less perfect plumbing, flushing, and ventilation, the sewer-air found its way into a majority of the houses.

6. When an epidemic of diphtheria appears in a city, the sewered and unsewered portions generally suffer alike.

7. No relation of interdependence can be traced between diphtheria and the sanitary state of a city, such, for example, as enables us to predict with almost absolute certainty, the typhoid fever mortality of a city from a knowledge of its sanitary condition, or conversely, the sanitary condition from its typhoid mortality.

8. The annual mortality from diphtheria fluctuates greatly, and this, too, in cities where the sanitary conditions are very nearly constant.

9. Diphtheria is a disease of cold weather, being most active when putrefactive decomposition in sewers is presumably least so.

10. Diphtheria is a contagious disease, transmissible from person to person and place to place, like smallpox and scarlet fever.

11. The closing of schools and other places of public gathering checks an epidemic; and the isolation of the sick from the well, with the subsequent proper disinfection of the sick-room and its contents, extinguishes it.

12. The data relied upon to prove a connection between sewerage and diphtheria, either cover too short a period to be trustworthy, or are drawn from single cities having incomplete and defective sewerage.—*The Medical Age*, May 10, 1886.

Duration of Vitality in Cholera Bacilli.—Guttmann and Neumann send from the Bacteriological Institute of the Moabit Hospital of Berlin, the following brief but important communication:

They have kept cultures of cholera bacilli in agar-agar for two hundred and eighteen days, and similar cultures in the beef-extract, peptone, and gelatine mixture for two hundred and nineteen days. At the expiration of these periods respectively, the bacilli were found capable of transplantation and continued development, and also produced their characteristic effects upon inoculation in guinea-pigs.—*Centralb. f. klin. Med.*, May 1, 1886.

Treatment of Vesical Calculi.—Dr. N. P. Dandridge, in a paper read before the Ohio State Medical Society, in June, 1886, thus formulates his experience in the treatment of stone.

Every case demands

1. An examination of the urethra, to determine its calibre and its tolerance of instruments.

2. A careful estimate of the size and composition of the stone.

3. A careful examination of the urine, to determine the character of the stone and the presence of Bright's disease or diabetes.

The present aspect of the treatment of vesical calculi justifies, in his opinion, the following conclusions:

1. In children, all cases should be submitted to lateral lithotomy, except in the very rare cases where the size of the stone demands the high operation.

2. In adult cases rapid lithotrity should be the rule, and is capable of dealing with about nine-tenths of all the cases met with.

3. Stones of unusual size, from one and one-half ounces upward, should be submitted to suprapubic lithotomy.

4. Stones formed round a foreign body can be safely removed by median lithotomy, even when of large size.

5. Stricture, simple and uncomplicated, should first be relieved by dilatation or internal urethrotomy, and the stone subsequently crushed.

6. Stricture, when indurated, or complicated by fistula or marked cystitis, should be submitted to a perineal lithotomy, and, by preference, the median operation should be chosen.

7. In hypertrophy of the prostate, the question of operation is to be largely determined by the necessity for drainage of the bladder.

8. The same can be said of the influence of cystitis in deciding upon the choice of operation.

9. In case of uncertain diagnosis, the median operation is indicated in order to permit of digital exploration of the bladder cavity.—*The Cincinnati Lancet-Clinic*, June 5, 1886.

Treatment of Syncope in Adolescents.—Dr. Clement Dukes, Physician to Rugby School, writes as follows to the *Lancet* of May 8, 1886:

An adolescent was sent to me with the statement that he had nearly fainted on three different days, but he did not become insensible. He came with the request that I would ascertain the cause of his faintness. Cases of the kind have happened to me under similar circumstances so many times, and their relief at first had been so unsatisfactory and difficult, that my experience may be of value to others, for I have established a fact. I have already incidentally referred to this fact in a former communication, but not so clearly or with such certainty as I wish to do now.

When such cases come under my investigation, I immediately and invariably examine the urine, instead of the heart, and generally find it loaded with albumen. It is, therefore, highly important that the urine should be examined and the kidneys treated by nitroglycerine, rather than the heart auscultated and tonics prescribed, "because of the patient's extreme debility and feeble action of his heart, etc.," as is usually the case. I have sometimes found, on examination of the heart and pulse, that, besides the marked albuminuria, there exists a heaving heart and somewhat rigid arteries—conditions incidental, I believe, in adolescents, more to the "age of puberty" than to the state of the kidneys. But often, as in a case at present under my care, the heart is really feeble, and the pulse totally devoid of the signs of a kidney pulse; and had it not now been my invariable rule to examine the urine in preference to the heart, I should doubtless have prescribed a tonic regimen, to the detriment of my patient. The treatment for the two conditions is so opposite that I do not hesitate thus to call special attention to it: a feeble heart and pulse being relieved by tonics, good food, and stimulants; while congested kidneys are alone cured by a hot bath, nitroglycerine, an aperient, and milk only as a diet. With such treatment this syncope of adolescents is usually cured in a few hours, and with daily prudence for some time there will be no return of syncope or albumen, and the patient will express himself as vigorous again.

Cold as a Cause of Disease.—Hankel thus describes an interesting series of experiments, the results of which give some explanation of the intense visceral congestions which may be induced by exposure to cold of a relatively slight cutaneous area:

While prosecuting some investigations, in the years 1871–72, upon the temperature of the skin, I made an effort to study the influence which would be exerted upon the temperature of the skin by marked cooling off of one foot, and this with the view of clearing up the question of taking cold. For the purpose named, I put one foot into a basin of cold water. Immediately thereupon the temperature of the skin of the breast sank to a marked degree, so much so, indeed, that the needle of the thermo-electric pile I was using at the time ceased to record it. I was, therefore, not in position to determine the temperature of the skin of the breast, even approximately.

By evening I began to sneeze, and got so severe a cold that I was not willing to repeat the experiment a second time, and so did not mention it in my previous report.

It appears to me, as a result of this experience, that, by rapidly lowering the temperature of one foot, the temperature of the entire skin immediately sinks; and, as this can occur only as the blood is driven out of the vessels of the skin, it must follow that the blood is forced into the internal organs generally, or, what is more unfavorable still, into some particular ones, leading to an inflammation, or, as in my case, to a severe cold.

Whether this lowering of the temperature of the entire skin, by the cooling off of one foot, invariably results, or occurs when a cold is coming on, not having repeated the experiment, I cannot decide.—*The American Practitioner and News*, May 29, 1886.

Antiseptic Solution for the Hygiene of the Mouth and Teeth.—Dr. Müller, professor in the Dental Institute of Berlin, recommends for the purpose indicated, the following formulæ:

I.—Bichloride of mercury	. .	gr. iij.
Thymol	. . . . .	gtt. iij.
Distilled water	. . . .	O j.

Use as a mouth-wash for thirty seconds.

II.—Thymol	. . . . .	gtt. iv.
Benzoic acid	. . . .	gr. xlv.
Tincture of eucalyptus	. .	ʒ iij.
Distilled water	. . . .	O jss.

Use the same as that of formula I.—*Journal de Médecine de Paris*, May 9, 1886.

Treatment of Syphilitic Alopecia.—Mauriac commends, as a local application in alopecia of syphilitic origin, a pomade thus constituted:

Turpeth mineral,		
Quinine sulphate	. . .	āā 1 part.
Lard	. . . . .	60 parts.

In treating the rapid exfoliation of dandruff which often accompanies this disorder, he directs the application of the following lotion:

Borax	. . . . .	1 part.
Sodium carbonate	. . . .	2 parts.
Distilled water	. . . .	600 "

—*L'Union Médicale*, May 27, 1886.

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CAUSES WHICH AFFECT THE PRODUCTION OF THE SEXES.

NOT long ago one of the most distinguished of French obstetricians remarked, referring to the pathology of puerperal eclampsia, "it is a bottle of ink." Most of those who have closely studied eclampsia will readily admit the truth of this statement. It may be added that like obscurity reigns over the subject of the production of the sexes, notwithstanding that the subject has engaged the attention of physicians and of philosophers from Hippocrates and Aristotle to the present time. Causes which were not causes have been alleged, and speculations which were mere artificial trees, having no life, and, of course, bearing no fruit, have abounded. A part of the work of modern science has been to destroy the errors of the past, and also to gather up the truths or the apparent truths it had collected.

How meagre our present knowledge upon the subject is may be judged by the fact that Stirling, in a note to his translation of the *Physiology* of Landois, quotes Hofacker and Sadler, whose investigations are half a century old, and on their authority asserts that if the husband is younger than the wife there are as many boys as girls; if the same age, the number of boys slightly predominates; but if he be older, then this predominance is greater. Nevertheless, BERTILLON, in his article upon "Natalité," in the *Dictionnaire Encyclopédique des Sciences Médicales*, has proved that these statements are not constantly true. Stirling also refers to the fact that in insects the food has a most important influence; but Pflüger, from his observation upon frogs, seems to conclude that it is without influence upon other forms of animal life, a conclusion which we believe is in the highest degree improbable.

The last number of the *Archiv für Gynäkologie* contains a contribution by CAMILLO FÜRST, upon the preponderance of male births from conception at the time of post-menstrual anæmia, or the period which immediately follows the menstrual flow. The article embraces many very interesting facts and probabilities, to some of which we will call attention. In the first part of this article, Fürst remarks that the two questions, when and how the final determination of the male and of the female sex is effected in man, animals, and plants, have hitherto been but unsatisfactorily answered by theories deduced from known facts. He further observes that the great interest manifested in this and other biological questions has found expression in the invention of theories and hypotheses which are frequently without any premises, or which, when really based on the result of investigations, lead to numberless contradictions, because, while investigating one factor, the influence of others has received little or no attention.

The first question, as it relates to man, is, Does this determination of sex occur before, during, or after impregnation? Certainly it must occur before we can distinguish the sexes anatomically. Statistics indicate that certain conditions before impregnation, as for example, the age of the procreator, his state as to nutrition and health acting upon the ovule, or upon the spermatozoid, result in the production of one sex rather than of the other. The question as to the influence of the time of impregnation in the determination of sex is one which can be more easily discussed than answered, and in our knowledge of this we have advanced little further than Aristotle. Further, various facts render it probable that certain conditions, such as nutrition, have an influence after impregnation in determining the sex. He thinks it also highly probable that the determination of sex occurs before, during, and after the impregnation of the ovum.

DÜSING, in his work "Die Regulirung der Geschlechtsverhältnisse bei der Vermachung der Menschen, Thiere, und Pflanzen," published in 1884, regards the greater preponderance of stillborn males over stillborn females as indicating the probable influence of nutrition in determining sex, for there is relatively a greater deficiency in nutritive material in the case of males than of females, since the former grow more rapidly, having an average greater weight. Another fact which favors this conclusion is that the embryos of almost all animals are at first hermaphroditic. The longer this hermaphroditic state remains, the greater the opportunity of changing the tendency toward the development of one or of the other sex. In the larvæ of the bee when the female genital system has begun to be developed, if there be insufficient food supplied, the development is arrested, and no queen bees are produced, but workers only,

and if the food be still further diminished those which would have been females become drones. Among higher animals, however, this early hermaphrodism seems a useless inheritance. The same principle is seen in the human race in the more frequent occurrence of hermaphrodism, in consequence of the late determination of sex, in multiple pregnancies; when more than one ovule is impregnated there is a competition between the two, a struggle for existence, and, hence, one is liable to suffer in development from deficiency of nutritive material.

Mayrhofer endeavored to refute this theory, which is an old one, by pointing to the fact that monstrosities are of the same sex; he believed that the sex was determined in the impregnation. Fürst answers him by saying that he forgets that a certain interval elapses between the time when the sex is determined after impregnation and the time when the first difference in the quantity of food appears. The chances for one or for the other sex, when this is determined after impregnation, may change in the same ovule before the final determination is made, and the last influence will have so much the greater power the less is that of previous influences.

In regard to the causes themselves, a variety must be assumed, and sex is the result of these combined influences. According to Mayrhofer, each parent has a tendency to produce his or her sex; this view Fürst regards as contradicted by statistical facts. In many forms of inferior animal existences, unimpregnated eggs always produce males. "If the wings of the queen bee are imperfect, so that copulation cannot occur while she is flying, or if she has used up her supply of semen, or her receptaculum be injured, or the spermatozoids are killed by frost, she lays unimpregnated eggs all of which are developed into drones." In view of all the knowledge we now have, the tendency of each sex is to produce the opposite sex. Fürst regards Düsing's law in reference to the regulation of sex in all animals as agreeing with this opinion. According to that law, all animals have inherited the peculiar power of being able to produce a preponderance of the sex which is deficient at a given time, that is, to supply a want. Now in delayed procreation in the human race—*e. g.*, in old primiparæ, or in multiparæ who give birth at long intervals, there is a preponderance of male births, and thus an actual deficiency of male births is made good. So, too, there is a preponderance of male births in primiparæ. There is a less preponderance of male births in unmarried women who become mothers, because impregnation usually occurs at an early age. After a war in which many males have been killed, there is a preponderance of male births.

Indirect causes are efficient in determining sex. Thus, when the constitution has become enfeebled, the sex of the individual will be produced. We can recall from our own observation some striking illustrations of the tendency of one sex to reproduce the opposite sex, and also of the truth of the statement that the enfeeblement of the individual causes the production of his own sex; one of each we will give. A., who was almost a Hercules in development, married a frail, delicate girl, who was scarcely half his size. Within six years she had three girls, but she became stronger and more robust, while her husband lost somewhat his physical vigor, and then a boy was born. B. married a healthy wife, he himself being in fair health; the first child, as is the more frequent in primiparæ, was a boy, and the next a girl; then the husband's health began to fail, and after a weary struggle for life during six years, he died of phthisis, his wife in the meanwhile having had three boys.

In addition to the nutrition, the vigor and the age of the individual are factors in determining the sex of the offspring. Each one at the time of greatest sexual vigor is least apt to continue his or her sex, and most apt to produce the opposite. In regard to the first of these propositions, Düsing's statistics are quite significant. He has recorded 861,640 births of colts: and found the average proportion of males to females 98.31 to 100. But if a stallion cover fifty or more mares the proportion of male colts to female varies from 100.7–101.19 to 100. If 20 to 54 mares were covered, it fell to 96, 60–97, 92 to 100. These statistics show that, obviously, the greater the vigor of the stallion the less probability of "getting" male colts, while that probability increased with the decrease of his vigor.

In reference to the second proposition, it would seem to sustain the Hofacker-Sadler law; but this law has in reality less influence than the absolute, not the relative, age of each. "As each declines from the standard of perfect sexual strength, the greater the liability of the production of his or her sex." Berner, studying the statistics of more than 200,000 births in Norway, has recently reached results which are in direct opposition to the Hofacker-Sadler law.

Fürst mentions an interesting fact in regard to animals in their native state, to wit, that they have the power of adapting the number produced to the environments; thus, when food is abundant there is a preponderance of female births, thereby promoting greater reproduction; but if food is scarce the number that can be reproduced is lessened by a greater number of male births.

In the human race statistics have shown that there is a lessened excess of male births in the wealthy classes and in cities, as compared with the greater preponderance in the working classes and in the

country, and that there is a transient increase in preponderance during a time of famine, depression, and war. Climate and seasons also have an influence. It has been observed that there is an increase in the number of male births before the extermination of a race.

All these considerations, with some others that are omitted from this analysis, lead Fürst to believe that there is an increase in the preponderance of male births when conception occurs in the early part of the period of post-menstrual anæmia. There is then deficient nutrition of the freshly impregnated ovule because of the uterine anæmia; and if defective nutrition can, at a later period of embryonic life, determine sex, how much more influential is such anæmia now! According to Düsing, the sexual development is influenced for three months by the nutrition of the mother. "It does not, therefore, seem that the chances for sex are very variable or equal, but rather that before any hermaphrodism can be demonstrated in the embryo, in some way in the dark recesses of germ-life the determination of sex has been made. Consequently, it is not a matter of indifference for the newly impregnated ovule, whether it reaches the uterus during the period of post-menstrual anæmia, or at a later period."

DRAINAGE OR PRESSURE.

THE importance of drainage in the dressing of surgical wounds is not only well recognized at the present time, but perhaps even exaggerated. Observation of the behavior of many operation wounds will show that drainage by tubes, or by means of strands of horsehair, brings to the surface so small a quantity of discharge that this step seems to be unnecessary. In the case of loss of substance by the removal of tumors, or by amputations, if it be possible to obliterate the resulting cavity or depression, drainage is quite unnecessary. This is plausible in theory, and it is found to be true in experience. It is now a good many years since Gamgee began strenuously to advocate the principles of dry and infrequent dressings, and those who have adopted these principles can bear witness to the fact that they have not been disappointed in the results. It is also probable that no small share in the success of dressings with various powders, such as iodoform, naphthalin, and bismuth, is to be attributed to their physical properties.

MAYDL recently reported in the *Centralblatt für Chirurgie*, for April 10, 1886, the results of close suture without drainage, in the clinic of Prof. Albert. Within a year the latter treated, among others, thirty-two amputation wounds in this way, and lost but one patient, who died of secondary hemorrhage. In several of his cases of amputation of the leg it appears that Albert pushed the idea of compression a little too far; for gangrene ensued in three out of eleven cases. In operations upon tendons, bones, and joints, his experience indicates unmistakably the utility of drainage.

It appears from a review of what has been accomplished without drainage, that the success of this method depends upon the possibility of approximating all fresh surfaces and maintaining them in apposition, without the use of so much pressure as shall seriously interfere with the circulation of the part. Where this can be done drainage is not called for. But, as there is always uncertainty on this point, and as it does not appear that any reasonable method of securing drainage has material disadvantages, it is not wise to discard it for close suturing which, when it succeeds, offers but little better results.

CHILDREN'S AID SOCIETIES.

THERE is no object more deserving of sympathy and kindly aid than that which affords to the helpless little ones of our crowded cities an opportunity of enjoying, for a brief period, the benefits of a sojourn in the country. A change of air and surroundings, even though for a day, is of the greatest advantage to the health, and certainly contributes to the enjoyment of children, who, through stress of poverty, are denied fresh air, wholesome food, and the ordinary comforts of life. Under such circumstances, the hot season is especially trying to the weak and sickly, and unless promptly rescued they speedily succumb to the unfavorable influences by which they are surrounded. This broad field for benevolent work has not been neglected. The Children's Country Week, the Sanitarium in Philadelphia and in Baltimore, the St. John's Guild in New York, and kindred societies in other cities, are accomplishing wonderful results, but their labors are necessarily restricted by limited resources.

As auxiliaries to the local sanitary authority in the employment of measures for the preservation and improvement of the public health these aid societies are of undoubted utility. But the city government cannot contribute to their support, though such assistance would promote public economy. These organizations must be wholly sustained by the generous offerings of the public, and to it the appeal is once more made.

The physician has unusual advantages for directing attention to these noble enterprises. No one knows better than he does the needs of the children of our poor at this season of the year, and his opportunities for enlisting the sympathy and generous aid of our wealthy citizens should not be suffered to slip away unimproved.

THE MEDICAL DEPARTMENT OF SHAW UNIVERSITY.

SOME two years ago, soon after the Medical Department of Shaw University had been founded, we

commented in these columns on the fact that it was the first medical school in this country that had made a four years' course compulsory, and commended the school on the wisdom of its action.

We are glad to learn that the result has justified what we then asserted, and moreover has shown the entire fairness of the State Medical Board of North Carolina. This spring the first class of six young colored men graduated in medicine at Shaw University, and three of them decided to practise in their native State. After an examination by the Board all three of them were admitted to practice, while of the white candidates we regret to say that one-fourth failed to pass—a sorry commentary on their knowledge.

REVIEWS.

Insomnia, and other Disorders of Sleep. By Henry M. Lyman, A.M., M.D., Professor of Physiology and of Diseases of the Nervous System, in Rush Medical College; Professor of Theory and Practice of Medicine in the Woman's Medical College; and Physician to the Presbyterian Hospital, Chicago, Ill. Pp. 239. W. T. Keener: Chicago, 1885.

The author of this interesting little book is evidently no mere routine practitioner, but a gentleman of culture who has read and thought much respecting the mysterious "brother of death," which Sir Thomas Browne declares takes away the third part of our lives. After considering the nature and causes of sleep, in regard to the latter of which Dr. Lyman accepts the theory of Pflüger, a chapter is devoted to the various influences which produce insomnia, arranged for study in two groups,—viz., first, those inducing wakefulness by irritation of peripheral portions of the sensory apparatus; and, second, those morbid states of the central nervous organs which disturb the normal recurrence of sleep. In the section on remedies for insomnia, little that is novel is presented except the remarks upon paraldehyde, which, in spite of its disagreeable taste and smell, is recommended as preferable to chloral hydrate in cases where there is no disease of the stomach, where the wakefulness is not dependent upon pain, and where it is associated with cerebral hyperæmia. An important advantage claimed for this hypnotic, is the absence of a period of excitement, such as follows the administration of chloral and immediately precedes the advent of refreshing slumber. The latter half of the volume is chiefly occupied with the subjects of dreams, somnambulism, and hypnotism, rendering it of more interest to the student of physiology than to the medical practitioner.

SOCIETY PROCEEDINGS.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, June 14, 1886.

Dr. C. D. Palmer read a paper on

THE EARLY DIAGNOSIS OF CANCER OF THE CERVIX UTERI.

It is stated on good authority, he said, that cancer is three times more frequent in women than in men, and that one-third to one-half of the total number of cases in women involve the uterus. It is a disease three times more frequent in the uterus than in any other organ of the body.

A comparison of the past and the present favors the opinion that cancer is occurring with increasing frequency. Without doubt this increase is largely apparent, the result very naturally of improved methods of diagnosis and more frequent examinations of the female pelvic organs. But there is reason to believe that the increase is not seeming only, but real; a result of the growing changes in the habits of living among modern people, for cancer is a disease which statistics tend to show follows in the wake of civilization. Its frequency and fatality among women seem frightful when it is estimated that three per cent. or more of their total mortality from all causes is by its ravages, and that it explains more deaths than any other pelvic disease peculiar to the sex.

The strong conviction, based upon clinical experience—a conviction growing stronger—that cancer is primarily a local disease, and that the system is implicated secondarily, has impelled surgeons to extirpate the diseased tissue as thoroughly as possible, consistent with life and the integrity of the surrounding parts. It has founded the practice that to be successful extirpation must be early. A very large proportion of the cases of uterine cancer are necessarily fatal, sooner or later, when first seen—fatal because the surrounding parts are so involved that entire extirpation is impracticable and impossible; fatal because the day of grace has been sinned away. If this fact is not clearly appreciated before any operative procedure, it becomes plain during it.

While these facts, which few, perhaps, will contradict, have no direct bearing on the subject of this paper, nevertheless they possess that degree of vital importance which ought to stimulate everyone concerned in gynecological practice in efforts to recognize as early as possible the true character of uterine cancer and its semblances.

The diseases of a malignant type which affect the uterus are carcinoma, epithelioma, and sarcoma. The first two, at least primarily, almost always involve the cervix uteri; the last, with the same uniformity, the body of the uterus. Schröder says that less than two per cent. of uterine cancers affect the body of the organ first. Most authors make a still greater difference. County says 1 in 429 cases. The corroding ulcer described by the Drs. Clarke, of London, affecting the cervix, is exceedingly rare, and is undoubtedly a form of epithelial cancer. Epithelial cancer, then, may be of the vegetating or ulcerative variety. The clinical differences between any of the above varieties of cancer, including cancroid (so-called), may, at the beginning, be easy of recognition, but as the disease advances, the superficial parts being more or less destroyed and the deep structures involved, a differentiation is not only difficult but may be impossible.

The benign affections of the cervix which at some time may be confounded with the malignant, are chronic inflammation, so called; a diffuse interstitial cervical metritis; a condition commencing with hyperæmia merging into hyperplasia, leaving the structures enlarged, irregular, and indurated. Associated

with these conditions, very often independent of them, we find endometrial inflammation with its results, erosions, granular and cystic degenerations, ectropion, the surfaces being the seat of various discharges of mucus, pus, or blood. It is true that syphilitic ulcerations and condylomatous formations, also fibroid infiltrations and tumors, may be mistaken for malignant disease, but their existence is not only less frequent than the aforementioned benign affections, but an error of this kind is certainly less likely to be committed.

Nothing can be easier than the diagnosis of most of the benign diseases of the cervix uteri. Nothing can be plainer than the determination of the presence of advanced cancer of this part of the uterus, by far the most common site. So characteristic is the ulceration, so deep the destruction and excavation of the tissues, so involved by its peculiar infiltration are the surrounding parts, so pronounced the symptoms, both general and local, that touch alone is ordinarily all sufficient. A combination of symptoms and local signs are present which no other disease fully simulates. By this time anything in the way of treatment is only palliative, and hence, while a correct diagnosis is important enough, practically life does not hang upon the decision. As it is of vital importance that we recognize a malignant disease of any type early, if we would do any radical or permanent good, and as mistakes are most generally made in the earlier stages of the disease, let us more fully consider this subject. Excluding from present consideration cancers of the uterine body, which are rare, for practical purposes we may divide the subject into two parts.

I. The form of cancer simulating or confounded with parenchymatous or fibrous benign diseases of the cervix.

II. The form of cancer mistaken for, simulating, or simulated by, endometrial diseases.

Exactly what anatomical structure which, in point of origin, undergoes the primary change in cancer is uncertain. Ruge and Vect say that the disease may originate in the connective tissue, in papillæ, glandular epithelium, and superficial epithelium. Probably the origin of carcinoma begins in a degeneration of the connective tissue cells, either under the mucous membrane of the vaginal face of the cervix or up within the cervical canal, while the epithelial growths or ulcerations first invade the superficial epithelium.

I. A carcinomatous infiltration arising within the connective tissue cells of the cervix, at once heightens the vascularity of the part, which in color looks reddish or bluish, produces nodulations more or less hard, and reduces the mobility of the superjacent mucous membrane—conditions which, when seen before characteristic ulceration has commenced, are nearly identical with changes brought about by a local hyperæmia, followed by a hyperplastic infiltration of the connective tissue. Should these changes of a commencing malignancy start in a cervix previously healthy, or so little diseased as to excite no special attention, they progress so insidiously—it may be slowly—that in all probability the patient will not call upon her physician until the second or ulcerative stage has advanced. Or should they commence in a cervix already diseased by chronic inflammation, one that is being inspected for treatment from time to time, they may even advance to a considerable degree before any special suspicion is excited.

The general health, either with a local condition of malignancy or innocence, may be good or bad (in incipient cancer not engrafted upon any local inflammatory state, it is frequently very good), while the local symptoms, pain, leucorrhœa, and menstrual aberration, are not unlike. Can a diagnosis now be made of the disease in its exact nature? In most instances, I think it can. The one thing needful is that a suspicion of malignancy be aroused; and if attention be directed to certain symptoms and signs, this suspicion as a rule may be dismissed or confirmed. In incipient malignancy, the redness arising from local congestion is more intense; if the epithelium is lost, the papillæ below are more prominent, and these bleed more easily upon touch; the circumscribed induration is more marked. The whole cervix may not be especially enlarged, is not tender to touch, and the whole uterus is mobile. The diagnostic test suggested by Spiegelberg, in 1871, (*a*) that the mucous membrane in a cancerous growth is firmly connected with the underlying induration and immovable over it, and not so in hyperplastic thickening and induration; and (*b*) that the hyperplastic induration under the pressure of compressed sponge in the cervical canal becomes regularly looser, softer, and thinner, the cancerous induration remains unaltered, hard, rigid, and cannot be stretched, is not as reliable as was at first supposed, even if practicable. But much valuable information can be gathered by carefully watching the developments of treatment; hence, it may be necessary to keep a patient under observation for a short time for diagnosis. It will be observed that, while all the local conditions, leucorrhœa, erosion, induration, etc., do improve under a well-directed local treatment, provided they are the offsprings of an inflammation, at the same time they do not at all, or but slightly—never permanently—change for the better, if malignant; but they manifest a special obstinacy to treatment—in fact, they progressively get worse. The leucorrhœa increases, the papillæ enlarge, and the erosion extends, the induration deepens, and the congestion becomes more intense. I think this is especially marked if the local treatment is of a caustic or irritating character.

Such developments should excite the gravest suspicions, notably in women of advanced years. If any doubts now remain, a small section of the indurated tissue should be excised and thoroughly examined under the microscope. Although there is no distinct cancer cell, a large aggregation of epithelial cells, with nuclei arranged within a fibrous stroma with alveolar spaces, is thought to be typical. I have great doubts whether microscopists by their examinations can, always, or in most cases, give us reliable opinions, without any other clinical evidences at hand; but with them, the microscope becomes strongly corroborative and confirmatory.

Whether chronic metritis proper—chronic interstitial metritis—has a tendency to be transformed into malignant disease, has been a matter of much disputation. Noeggerath, who ably considered this subject several years since, took the affirmative side of the question.

II. Under the second heading, the form of cancer which is confounded with endometrial or mucous benign diseases, is epithelioma.

In either class of diseases under consideration—paren-

chymatous or mucous—an error in diagnosis may be made in either direction, of course; the benign taken for cancerous, or *vice versa*. Early carcinoma of the cervix proper is, I think, often overlooked, the disease being interpreted more frequently as inflammatory, than otherwise. But not so with an endometrial growth: the disease now much more frequently being supposed to be malignant where it is innocent. In reference to this point, I can recall numerous instances in my own practice and that of others, where the diagnosis of malignancy has been made for the time being, and it is easy to understand how certain cases may be reported as having been cured by an operation of cervical amputation or excision, when no cancer whatever has been present.

The first, the great cause in the formation of epithelial growths of the cervix uteri, is laceration occurring during parturition. If this has not healed primarily, especially if bilateral, it leaves the cervical walls gaping, and, sooner or later, a progressive hyperplasia, papillary and follicular, increases the size of the cervix, creates erosion of the separated lips, which become covered with a mass of fungoid granulations. These fungoid granulations, an outcropping of a perverted nutrition, spring up in nature's efforts to repair a local injury. They may develop within a comparatively short period after the laceration, or many years later, even after the climacteric period. They are at first, and may always, probably, continue to remain innocent formations—benign papillomata or epitheliomata, so to speak, if not excessive.

On the other hand, however, with an uncertain degree of frequency, they may quickly develop into malignancy. More often this change comes later on, merging insensibly into degeneracy. The frequency and rapidity of this degeneration are determined, there is reason to believe, by certain constitutional states, not in themselves cancerous, but such as afford a fertile soil for this kind of growth. The fact that the transformation may be exceedingly slow, consuming years, is an important one. It proves that, because the laceration with its results has lasted a long time, we ought not to be thrown off our guard as to the supervention of what is much more than a mere possibility. For some time before, during, and even after the transformation, the local appearances may not be greatly unlike, hence the liability to an error in diagnosis. The whole uterus has almost its natural mobility, there is no noticeable parametritic infiltration, the body of the organ is not implicated; the entire disease is limited to the cervix, and this part presents the physical conditions, mushroom-like in shape, covered with masses of vegetating fungosities, or there is a well-defined excavation, a true ulcerative action.

The relation of erosion, eversion, and granular degeneration, arising from lacerations of the cervix, to the development of epithelioma, as cause and effect, was first pointed out by Briesbey, and has been repeatedly referred to by Ruge, Veit, Emmet, and others. The last-named authority says that he believes that nearly all, if not all, cases of epithelioma of the cervix have their exciting cause in a laceration. The fact that epithelial cancer is exceedingly rare in virgins, or in women who have never been pregnant; that the disease exists most frequently in women who have had children in number above the average; and that in almost every case, unless the disease is so far advanced as to have produced much destruction of tissue, the old line of laceration and cicatrization can be marked out by the finger, proves that the belief of this distinguished authority is so well founded as to end all controversy in this direction.

Unquestionably malignant, epitheliomatous degeneration is more likely to ensue in cases of cervical laceration in which the torn surfaces never cicatrize. But cicatrization, whether by nature or art, is not, by any means, a complete barrier. Cicatrization does not do away with the ill consequences of laceration, eversion, hyperplasia, and follicular degeneration; and from the deep layers of the squamous epithelium of the everted surfaces, or from the greatly increased glandular epithelium, a cancerous growth may spring up. Siredey and Daulos (quoted by Parvin) say that benign papillomata are more friable, bleed more easily, and are implanted upon a broader base than the malignant. But not only are these differences not pronounced, but they cannot be depended upon in diagnosis.

It is very probable that the microscope will not afford evidence for a positive conclusion until the disease is well advanced, but its use should always be brought into requisition.

Topical treatment, in the absence of the microscope, or before its employment, can always be found to be a very valuable guide for diagnostic purposes. The local application of such an emollient as boroglyceride, of such astringents as the glycerite of tannin, or alum, once in two or three days; the shaving off of fungoid granulations with the scissors, or their removal with a sharp curette, followed by the above medicaments, will almost invariably so wonderfully improve the condition of the parts, in from a few days to a few weeks, provided the disease is inflammatory and benign, as to put at rest all suspicions of malignancy. On the other hand, such treatment, it matters not how skilfully directed, can only be slightly, never progressively, beneficial, when the cancerous degeneration is fixed. In quite a number of cases, both in public and private practice, where large masses of benign granulations have sprouted up over deeply lacerated and everted cervices, presenting the physical aspect of malignant epithelioma, when the general health, in consequence of a profuse leucorrhœa and menorrhagia, was being undermined, and when doubts arose as to the real nature of the local difficulty, the treatment referred to has quickly settled the diagnosis by the results obtained.

We all know that epithelioma of the cervix uteri of the vegetating kind is the least malignant of all malignant growths; purely of local origin, localized for an indefinite period, possibly for years, disseminating itself through surrounding structures very slowly. Removed reasonably early, permanent relief is not only possible, but probable. And not only ought extirpation to be early and thorough in epithelioma, but the cause giving rise to, and conditions simulating and degenerating into the same, should receive proper surgical attention. Whilst the outlook is less favorable for a carcinoma proper, the same principles hold good. Suspicious cases should be subjected to the most rigid scrutiny, all diagnostic tests being applied. Doubts may still remain. But truly doubtful cases should come under the same class demanding operative treatment. If now and then

one is subjected to treatment not absolutely needed, a greater number will obtain a measure of relief, a prolongation of life, and an easier death.

ONTARIO MEDICAL ASSOCIATION.

Sixth Annual Meeting, held at Toronto, June 2 and 3, 1886.

(Specially reported for THE MEDICAL NEWS.)

THURSDAY, JUNE 3.—SECOND DAY.

DR. HENDERSON, of Kingston, read a paper on a

GLIOSARCOMA INVOLVING THE PITUITARY BODY,

and presented the specimen from a man under his care in the hospital at Kingston.

DR. F. R. ECCLES, of London, introduced

THE DISCUSSION ON PUERPERAL ALBUMINURIA.

He first dealt with the minute anatomy of the kidney, composition of the urine, and the method of its elimination, and pointed out that the present state of science does not enable us to explain the absence of albumin from the urine in health. He next referred to the physiological changes in the uterus, pelvic lymphatics, portal system, spleen, liver, etc., during gestation. These changes give rise to great increase in the effete matter in the blood; hence the greatly increased activity of the emunctories, especially the kidneys. The increased waste results in increased tension of the vascular system. He believed it is in this direction we would have to look for the cause of albuminuria.

By many the pressure of the uterine tumor has been assigned as a cause; but this explanation is insufficient, as ovarian and other tumors rarely cause albuminuria. The effect of gestation was next dealt with. The presence of albumen in the urine may continue without any disturbance; abortion may result and save the patient from worse consequences; it may result in eclampsia. The existence of renal disease before pregnancy renders the prognosis especially grave. The treatment was briefly reviewed. The disappearance of albuminuria after the death of the fœtus in utero and after delivery indicates the course to be pursued in severe cases. Whether to try to conduct the case to full term, taking the risk, or to terminate the gestation and avoid the risk, is often difficult to decide; it is, however, better to lose twelve children than one mother.

DR. A. H. WRIGHT, of Toronto, said it was well to sum up all the physiological changes in pregnancy, but they are physiological after all. To put them and albuminuria as cause and effect is manifestly improper. In the management of these cases we have to remember two things, viz., the blood is impoverished and poisoned. Therefore, tonics, of which tr. fer. chlorid. is best, are required to improve the anæmia, and all the emunctories are to be stimulated to remove the deleterious matters from the blood. He had very serious objections to operative treatment—it produces too much shock, and is not to be resorted to until all other means have failed; if the case cannot be allowed to continue longer, labor is to be induced.

DR. ROSEBRUGH, of Hamilton, said it was of the utmost importance to ascertain whether kidneys were healthy before pregnancy, as few cases in which Bright's disease occurred could be allowed to go on to full term. He dissented strongly from the doctrine that pregnancy should be terminated as soon as the presence of albumen in the urine is ascertained. The case should be guided and watched, but pregnancy is to be terminated only for the gravest cause.

DR. TEMPLE, of Toronto, agreed in the main with the opinions advanced in the paper. He had long since abandoned the theory that pressure of the uterine tumor caused the albuminuria. The cause may perhaps be found in the increased arterial tension as indicated by the late Dr. Mahomed. He relies chiefly on morphine in convulsions, giving it in half grain doses hypodermatically, every two hours or more as needed.

DR. MOORE, of Rochester, said that the old authors described a condition of albuminuria chronic in character, requiring persistent catharsis. He cited some cases, agreeing with such a description, coming under his own observation. In these he selected Epsom salts as best meeting the requirements, being efficient and but little irritating. Enough should be given to produce three motions daily. He had continued such treatment for many months in cases of albuminuria with very severe dropsy. At first the improvement was slow, but it was ultimately quite satisfactory. One such case was seen twenty years after in perfect health. He became convinced that one of the most powerful agents, even in organic disease, is steady laxation. There are conditions of chronic albuminuria of non-organic kind which, if not interfered with, will become organic, terminating fatally, but which may be interfered with and cured.

He knew no better agent in the albuminuria of pregnancy than Epsom salts given as above. It is entirely free from danger of producing miscarriage. If albumen does not diminish, it keeps the patient free from bad symptoms as headache, nausea, etc., and she is carried along safely. In puerperal convulsions he would give a large dose of calomel—it is slow but sure. Follow it in a short time by a *terrific rider* of croton oil. In mean time to suspend convulsions, give ether—it will stop them for hours but not permanently arrest them. It should be given sufficiently freely to keep the patient fully under its influence. It may be given with perfect safety when the patient is in deepest coma; it is a mistake not to give it then, and so prevent further convulsive attacks. As soon as the calomel and croton oil act he feels that his patient is quite safe and she can be left without any further concern.

Drs. MacDonald, of Hamilton; Brouse, of Brockville; Ferguson, of Toronto; Mitchell, of Enniskillen; and Harrison, of Selkirk, also took part in the discussion.

DR. MCKINNON, of Guelph, then reported *Some Cases of Ovariotomy.*

AFTERNOON SESSION.

DR. DUPIUS, of Kingston, read notes on a case of *Multiple Hepatic Abscesses with Petrifaction of Gall-Bladder.* The petrified gall-bladder was about two and a half inches long and resembled in size and shape a partly flexed middle finger.

He also read notes and presented a specimen of *Malformation of Rectum and Anus (Congenital)* in which the rectum opened into the bladder.

OFFICERS FOR THE ENSUING YEAR.

The Nominating Committee presented their report as follows, which was adopted:

President.— Dr. J. H. Richardson, of Toronto.

Vice-Presidents.—Drs. Harrison, of Selkirk; Brouse, of Brockville; Moorhouse, of London; Aylesworth, of Collingwood.

Corresponding Secretaries.—Drs. Fraser, of Sarnia; Harris, of Brantford; Aikin, of Collingwood; and Gibson, of Belleville.

General Secretary.—Dr. J. E. White, of Toronto.

Treasurer.—Dr. N. A. Powell, of Toronto.

Time and place of next meeting—Toronto, on 1st Wednesday in June, 1887.

DR. MCFARLANE, of Toronto, gave a short address on

THE SURGICAL TREATMENT OF DIPHTHERITIC CROUP.

The methods of treatment must vary with the type of case. Some die from heart failure, some from œdema of lungs, some from the poison of the disease, etc. The point on which he wished to elicit discussion was as to the propriety of performing tracheotomy in this disease. He believed diphtheritic and membranous croup two distinct diseases. In the latter, tracheotomy should be done when necessary to relieve the laryngeal stenosis; in the former, the propriety of operating is doubtful. He had operated in twelve cases; three were membranous croup, and two recovered; nine were diphtheritic, and all died. In the statistics of cases operated on no distinction was made between the two diseases. In diphtheria, exudation is likely to occur on any point that is irritated, hence it would probably form on the trachea at the point irritated by the lower end of the tracheotomy tube and spread downward.

DR. G. R. MCDONAGH, of Toronto, then presented a paper on

THE IDENTITY OF CROUP AND DIPHTHERIA,

in which he considered first the supposed anatomical pathological differences, and, secondly, the alleged clinical differences in the two diseases. After referring to the theory of Virchow (which he himself afterward abandoned as inadmissible) that the exudation in diphtheria was formed *within*, and that in croup *upon* the mucous membrane, Virchow's later theory of the tissue necrosis beneath the false membrane was discussed. Several eminent authorities were quoted to prove that this feature is not a real distinction, but only a difference in degree, and also that tissue necrosis exists in croup as well as in diphtheria. The difference in the degree of adhesion of the exudation to the mucous membrane was explained by the physiological and anatomical differences of the pharynx and larynx, and particularly with regard to the epithelial layer, which, in the larynx, is separated from the underlying tissues by a distinct homogeneous basement membrane, whilst that in the pharynx passes gradually into the tissues beneath without separation. On microscopical examination it is admitted by pathologists that no real distinction can be detected. The descriptions of Dr. E. Wagner, probably the best authority, show no practical difference.

The clinical aspect was then discussed. Difference of site could not be considered as a real distinction, for not only do we find cases of diphtheria extending to the larynx, and cases clinically answering to croup extending to the pharynx, but we have the best authority (Sir William Jenner) for saying that true diphtheria may be limited entirely to the larynx. The reason that this is not more frequently seen to be the case is often due to want of the requisite careful examination by the physician. With regard to the alleged non-contagiousness of croup, it was argued first that not unfrequently so-called croup does spread, as, for instance, when one member of a family is attacked with the regular form of croup and afterward other members of the same family contract diphtheria. Secondly, when the disease does not spread the original case may have been only one of simple acute laryngitis with dried catarrhal secretion, and not one of membranous croup at all. Thirdly, that the fact of the disease not always spreading is no reason that it is not diphtheria. The different degree of the general toxæmic effect and the swelling of the neighboring glands was explained most fully on physiological and anatomical ground. The writer held the opinion that the toxæmia is due in part, at least, to absorption of septic matter from the diseased parts. After showing the great richness of the lymphatic absorbent supply in the pharynx, and the connection with the glands about the angle of the jaw, and in contrast the very scanty development of the lymphatics and paucity of glands in connection with the larynx, the writer argued that here is to be found the chief cause of the severe adynamia in diphtheria, and, further, that the same cause is responsible for the greater frequency of albuminuria in diphtheria, and perhaps also for the paralysis. The case of Hüter's of undoubted croup was quoted, in which complete paralysis of the pharyngeal muscles took place. The writer believed, for these reasons, that so-called membranous croup and diphtheria are the same disease with different sites of local manifestation.

DR. CRONYN, of Buffalo, had no doubt that diphtheria is a constitutional disease and that true croup is always true diphtheria, and, therefore, always also a constitutional affection. Twenty-three years ago his finger was bitten by a child suffering from membranous croup. Eight days later a little pellicle formed at the seat of wound; after four days he had malaise, headache, and in three days more his throat was sore and he was very ill. He passed through a severe attack of diphtheria. From his own experience he entirely objected to local treatment on account of the suffering it produces as well as on account of its inefficiency, owing to the disease being constitutional. He would in no case perform tracheotomy.

DR. W. T. AIKINS, of Toronto, had opened the trachea in many cases. They all died. If they recover after tracheotomy, their recovery is not due to the operation.

DR. PALMER, of Toronto, said there was a line of successful cases of tracheotomy in true diphtheritic croup down to the present from the time of Trousseau, who had one successful case in four. They are sure to die without the operation; we should, therefore, give them the benefit of any chance afforded by it.

DR. MCPHEDRAN, of Toronto, said that tracheotomy has saved many cases of diphtheritic laryngitis is established on the most indisputable authority; it is too late, therefore, to challenge it as a proper operation in many cases. He believed that not a few cases are lost

through inefficient nursing after operation; it is useless to operate unless the child receives the most skilful management. In many cases of catarrhal inflammation of larynx and trachea the secretion becomes so inspissated as to appear almost membranous; this is strongly emphasized by Professor James. These cases present symptoms indistinguishable from those of membranous croup. Such a case came under his own observation lately in a child, one and a half years old, who was recovering from scarlatina. After the symptoms of croup had disappeared, death took place from a low form of pneumonia. Doubtless many cases of recovery after tracheotomy were just such as this one. He desired to enter his protest against the directions for treatment of diphtheria given by almost all the authorities. They give specific directions for frequent local applications to be made to children without any cognizance being taken of the impossibility of doing so in the majority of cases without a struggle, in which the child suffers more injury than can be counterbalanced by the entire local treatment.

Dr. Atherton, of Toronto, said that he had had a case recover after tracheotomy in which membrane formed on the wound and the father had diphtheritic membrane form in the pharynx. He thought acute croupal cases unsuitable for operation; the more gradually the stenosis is developed, the greater the prospect of recovery. The same rule holds true in diphtheria, in which the deposit occurs on any part.

Dr. Palmer, of Toronto, followed with a paper on *Diseases of the Eye in Pregnant Women*.

Dr. A. H. Wright, of Toronto, read a paper on

SECONDARY PUERPERAL HEMORRHAGE,

the conclusions of which were that nearly all cases are due to retention of pieces of placenta and that the proper treatment is to explore the uterus.

A LARGE URIC ACID CALCULUS.

Dr. Aylwin, of Kingston, showed the cast of a calculus, oval-shaped, measuring nearly twelve inches in longest diameter, and weighing about twenty ounces. It was removed by the suprapubic operation. It was the largest uric acid calculus on record.

Dr. Tremaine, of Buffalo, said the suprapubic method was by far the safest cutting operation. By it you avoid the possibility of hemorrhage, also injury to the genital apparatus. He believed the latter consideration of great importance, especially in children. Of seventeen cases of children cut by the perineal section reported by Dr. Halberstadt, of Pottsville, Pa., only one had issue. It was best to suture the bladder in ordinary cases, but in cases in which there was cystitis, etc., an opening had better be left for drainage. The existance of an enlarged prostate was an additional reason for preferring the suprapubic operation to perineal section. The bladder was more easily entered, and if a small central elevation existed at the neck of the bladder, it could be pinched off. The peritoneum is in some danger of being wounded, but with care can be avoided. It was opened in one of his own cases, and bowel protruded. A suture was passed through the abdominal wall and bladder, and the man recovered without a bad symptom. In no case had hernia followed the operation, so far as he knew. He believed the operation would give better results than even rapid lithotrity.

Dr. W. T. Aikins, of Toronto, referred to some cases in his own experience, in one of which there followed hernia.

Dr. Cameron, of Toronto, was strongly in favor of the high operation, especially in children, on account of non-interference with the genitals, and of the high position of the bladder. He, however, took issue with Dr. Tremaine in cases of enlarged prostate, because in these the prostatic trouble is capable of greater relief by perineal section. Besides, in these the stone cannot be raised out of the pelvis. He drew attention to the fact first pointed out by a London surgeon, that the bladder, when forced up, has its posterior surface brought upward and forward, and exposed to the line of incision.

Evening Session.

Dr. Oldright, of Toronto, presented a paper on

SOME POINTS IN THE TREATMENT OF COLLES'S FRACTURE.

He said that great pains should be taken to secure perfect coaptation. The splint used is usually too long; it should extend only as far as the first phalanges at first, so as to allow of passive motion at end of eight or ten days. This is of special importance. The splint should then be gradually shortened, till it extends only to the metacarpal bones. Bandages should not be applied very tightly.

Dr. Moore, of Rochester, said there was great inequality in the results of treatment of this fracture; one was good, and another bad. He then discussed the anatomy of the wrist, pointing out that the hand is wholly supported by the radius, the ulna being separated by the intervention of the triangular fibro-cartilage which is attached by its apex at the base of the styloid process. The force causing the fracture might be of three degrees; 1st, just sufficient to break the radius; less than this would simply sprain the wrist; 2d, the balance of force after fracture causes dislocation of ulna, in which the triangular cartilage is torn from its attachment at the base of the styloid process, or, more frequently, the styloid is broken off, leaving a pointed base, which is forced into the anterior annular ligament, from which it is often with difficulty dislodged; 3d, the force is so great as to lead to a compound luxation, the ulna being driven through the skin beside the pisiform bone. He had reached these conclusions from the results of a number of post-mortem examinations of recent and old fractures.

In the treatment of simple cases without dislocation, any kind of splint, pistol or other, usually gave good results; but if there was dislocation of the ulna, the pistol splint made matters worse, and unless the luxation is reduced, no kind of treatment gives good results. He then explained the method of treatment devised by himself, and demonstrated its application on the arm of one of the audience. In cases that came to him with bad results he had not hesitated to break the bone again as long as six months after the accident, but after that the union is too firm to render this method advisable. In such cases the end of the ulna may be removed with much benefit. He removes the dressing, in all cases, in three weeks, and resorts to passive motion very early in the treatment.

Dr. Cameron, of Toronto, related some cases under his care, in which there was dislocation. They were

treated after Dr. Moore's method, with the most satisfactory results. He pointed out that dislocation might be prevented by impaction of the fracture. He concluded by moving a vote of thanks to Dr. Moore for his exposition of his views on this fracture and his method of treatment.

Dr. Jones, of Port Perry, in seconding the motion, said he had followed Dr. Moore's teaching for the last sixteen years, and his results had been almost invariably satisfactory. The motion was most cordially assented to.

The President-elect was then conducted to the chair and took his seat amid applause. He briefly returned thanks for the honor conferred on him.

After the usual complimentary motions, the Association adjourned.

CORRESPONDENCE.

THE MEDICAL SCHOOL OF MAINE.

To-day the Medical School of Maine held its sixty-sixth graduation exercises, and added twenty graduates as its contribution to the ranks of the profession. Until the organization of the Bowdoin Medical Alumni Association, in 1884, these exercises were confined mainly to reading two or three theses, and the public presentation of diplomas by the President of Bowdoin College. Now they are held in the Memorial Hall of the College, increased by a formal address by some invited guest and a valedictory from a member of the class, and rendered more attractive by choice music and daintily engraved programmes, and crowned by a general reunion and banquet given by the Medical Alumni. All of which argues well for the progress and zeal of the Alumni and the good taste of graduating classes.

The exercises of to-day were characterized by a most excellent address from Rev. Wm. H. Fenn, D.D., of Portland, who selected as his subject "The Moral Element in the Physician."

The valedictory address was then made by Wm. Lawrence Dana, A. B. (Harv.), of Portland.

After the presentation of diplomas, the annual meeting of the Medical Alumni was held, and the following officers elected.

President.—H. H. Hunt, M.D., of Portland.

Vice-Presidents.—D. A. Robinson, M.D., of Bangor, B. F. Dunn, M.D., of Windham.

Treasurer.—F. H. Gerrish, M.D., of Portland.

Secretary.—C. D. Smith, M.D., of Portland.

Following adjournment, the Alumni and their guests repaired to the dining-room and sat down to an elegant banquet.

The chief interest of this portion of the entertainment centred upon the remarks of President Hyde, in response to the toast "Bowdoin College," which gave an inkling of the sentiment of the Trustees relative to the change of the school from Brunswick to Portland. With the members of the Alumni Association this change has become a fixed purpose; the great body of the Alumni desire it, the Faculty of the School are anxious for it, the Maine Medical Association has asked it, and the best interests of the School urgently demand increased facilities for clinical study.

As one of the professors, himself a graduate of Bowdoin College, has said, the School has always been an *honor* to the College, and *never* an expense; the College is asked to put itself to no expense now, yet the plan has been hampered, thwarted, and delayed, and with no reasonable explanation. A committee of conference, respectfully appointed by the Maine Medical Association, was regarded with the utmost indifference, and the medical fraternity begins to feel that such ultra-conservatism ought to have some limit.

The President's remarks indicated the same reluctance on the part of the Board as heretofore, and he very happily likened the school to the blushing maiden whose parents are reluctant and fearful to let her go unhindered to the arms of her first suitor.

The worthy Professor of Medical Jurisprudence, in replying to the sentiment, "The Faculty of the Medical School," detracted somewhat from the force of the eloquence of the President, by remarking that it ought to be reasonably certain that a blushing damsel of some three-score-and-six years had attained to some degree of discretion as to her own affairs, and one would naturally suppose that in refusing an eligible offer to take such a daughter, the parents would exhibit either poor judgment or failing mental powers to an alarming extent.

Dr. L. W. Pendleton, of Portland, responded for "The Portland School for Medical Instruction;" Dr. D. A. Robinson, of Bangor, for "The Alumni;" and Dr. I. T. Dana, of Portland, for "The Maine Medical Association."

The Association then adjourned.

The day was otherwise occupied by various class reunions, and the exhibition at the Medical School building of a new and beautiful collection of plaster casts of the viscera and frozen sections of the human body, just imported by Prof. Gerrish from Leipsic.

Brunswick, Me., June 23, 1886.

NEW INVENTIONS.

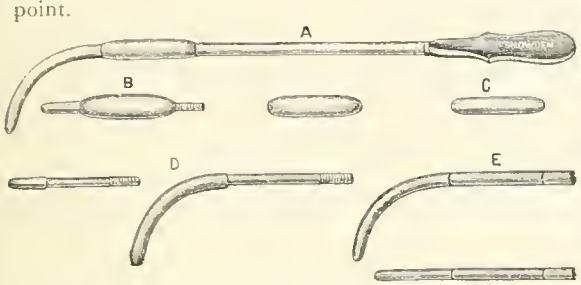
A DESCRIPTION OF A FULL SET OF POCKET BOUGIES MADE OF STEEL.

By T. NEELY RHOADS, M.D.,
resident physician at the jefferson college hospital, philadelphia.

I have devised the following extemporaneous mode of making bougies, which presents some points of practical interest. I take an ordinary steel bougie, No. 16 (French) is preferable, and melt a little solder around it about two inches from the beak, allowing it to extend back two inches or more, whittling off the surplus solder with a pocket-knife, each end of the bulb being tapered. Each time the bougie is passed a little more solder may be added, smoothing it with fine sandpaper until the size required has been attained, and the stricture thoroughly dilated.

It afterwards occurred to me that these bulbs might be made of steel, with a hole through each, lengthwise, or that they could be slipped on the bougie or staff. Mr. Snowden subsequently made the instrument for me as represented in the accompanying cut, by the letter *A*, which shows the instrument adjusted ready for insertion. It consists of a No. 16 (French) bougie in two sections, screwed together with a No. 22 bulb in position. *D* represents the curved point of Fig. *A*, showing the shoulder against which the bulbs rest, and also the threads to be screwed into the staff. *B* represents a

straight point with a No. 35 bulb in position, also showing the threads to be screwed into the staff. *C* shows the bulb, and *E* a sheath or bulb, with a circumference exactly the same as that of the bougie used, and which can be used with either the straight or curved point.



Twenty bulbs constructed on this plan are equivalent to forty bougies, for, by using the curved point, twenty curved bougies can be made that will dilate a stricture in any part of the urethra, and by simply removing the curved point and adding the straight, twenty meatus bougies can be made, suitable for dilating strictures at or near the meatus of the male urethra, and all strictures in any part of the female urethra.

I have found that patients do not suffer nearly so much pain in having this instrument passed as with the ordinary bougies. This is due to the following causes: First, the meatus is generally the most sensitive part of the urethra, and is always the *smallest* normally; second, the bougie in general use is so constructed that it gradually increases from the point up, being one or two sizes larger at the handle than at the point, consequently a stricture four or five inches from the meatus will not receive as much stretching as the meatus by at least one size. By using the bulbous instrument, only the same size passes the meatus, and its passage may be effected so quickly as to be almost painless, and when the bulb gets to the stricture it may remain there a minute or so without keeping the meatus on the stretch. Another advantage of the instrument here described is its cheapness. A full set of ordinary curved bougies, say twenty, will cost at least twenty dollars, and will take a large, cumbersome box to hold them, and a similar full set of meatus bougies will cost nearly as much, and need a box more than half as large, so that to carry the two boxes a carriage is almost necessary, while with my device, a case containing twenty meatus and twenty curved bougies and several hard-rubber bulbous explorers can be carried in the inside coat pocket, and can also be carried into a patient's room without exciting remark, and can be made for at least half the cost of the others.

It might be well to have in the case an extra staff of larger size for hyperæsthetic urethras, and an extra point or two, also larger, for enlarged prostates. There are also other variations that might be added.

NEWS ITEMS.

Maine Medical Association.—At the thirty-fourth annual meeting of this Society, held at Portland on June 1st, 2d, and 3d, the following were elected officers for the ensuing year:

President.—J. B. Walker, M.D., of Thomaston.

Vice-Presidents.—F. C. Thayer, M.D., of Waterville; H. E. Hill, M.D., of Saco.

Permanent Secretary.—Charles D. Smith, M.D., of Portland.

Treasurer.—Aug. S. Thayer, M.D., of Portland.

Corresponding Secretary.—C. E. Williams, M.D., of Auburn.

The Home for Incurables, of Baltimore, has recently received a legacy of $5000, from a deceased friend of the institution. The Home was incorporated less than three years ago and now owns between $35,000 and $40,000, all of which has been raised by donations, subscriptions, and entertainments.

Willard Insane Asylum, the central asylum for chronic insane cases in New York State, and which has now more than eighteen hundred patients has reduced the per capita charge to the counties to $2.00 per week, thus supplying the best of care at a minimum cost to the taxpayer. The cottage plan of house construction is in vogue at Willard's.

A Legal Point of Medical Interest.—A writer in the *Medical Age* says that a judge in Big Rapids recently decided that a physician's knowledge is his stock in trade, his capital, and the courts have no more right to take it without extra compensation than to take provisions from a grocery without pay to feed a jury. He declined to compel an expert to testify. Possibly in this manner the question may be decided by the Supreme Court.

Massachusetts Board of Health.—The reörganized Board of Health of Massachusetts has elected Dr. S. W. Abbott Secretary, and Dr. H. P. Walcott, President.

Professor von Langenbeck, who has been nearly blind from cataract, has been operated on successfully by Dr. Pagenstecher in Wiesbaden.

Typhoid Fever in the United States.—About twenty-five thousand deaths from typhoid fever occur in this country annually, and this represents fully one hundred and fifty thousand cases of the disease. The hundred and twenty-five thousand persons who recover, lose six weeks out of their lives, and carry perhaps some vestiges of the fever's influence for years.

Regulation of Veterinary Medicine in New York.—The passage by the last legislature of the bill to regulate veterinary practice makes New York the first State to undertake this work. The law compels the registration of veterinarians at the county clerk's office, and makes it incumbent on those registering to have a diploma.

Honors to Dr. Oliver Wendell Holmes.—The honorary degree of Doctor of Laws has been conferred upon Dr. Holmes by the Universities of Edinburgh, Cambridge, and Oxford.

Dr. Holmes, amid a scene of great enthusiasm, was admitted to the degree of Doctor in Letters (*honoris causâ*) in the Senate House, Cambridge, on Thursday, June 17th. The orator, in introducing him, characterized him as one who combined enthusiasm for science with

distinction in literature, one who "Phœbo ante alios dilectus," had received more than one gift of Apollo, the gift of skill in the healing art, as well as the gifts of eloquence and soul. They had lately heard with pleasure that the writer, whose almost earliest poem was "The Last Leaf," had just announced the "First Opening of the New Portfolio." The well-known volumes of the breakfast-table series were alluded to in the following terms: "Novimus quanto lepore descripserit colloquia illa antemeridiana, symposia illa sobria et severa sed eadem festiva et faceta, in quibus totiens mutata persona, modo poeta, modo professor, modo princeps et arbiter loquendi, inter convivas suos regnat." In allusion to an anecdote lately current in Cambridge, respecting some English travellers, who had deliberately taken the *Autocrat* with them as the only literary resource during a long tour in a remote part of Norway, the orator continued: "Talibus libellis comitati, etiam Scandinaviæ solitudines tolerare possumus; talibus libellis edocti, vitæ humanæ societatem melius diligere discimus." He also referred to the fact that the day was the anniversary of the battle of Bunker's Hill, which was commemorated by a monument in the immediate neighborhood of the Transatlantic Cambridge. It was also the anniversary of the death of Addison, and the language of eulogy once applied to that writer might appropriately be transferred to Dr. Holmes: "Haud ignobili poetæ, in oratione soluta contexenda summo artifici, censori morum gravi sane sed et perjucundo, levioribus in argumentis subridenti suaviter, res etiam serias lepore quodam suo contingenti." Addison, however, died in the forty-seventh year of his age, whereas Dr. Holmes was nearly fifty when his fame as a writer burst out into a fresh brightness like that of the Indian summer: "ubi in ipso autumno novus refulget æstatis splendor." The orator concluded in these words: "Videor mihi vatem quendam canentem audivisse, illum cujus in corde æstas æterna floreret, non vocandum esse senem. Equidem juventutis perpetuæ fontem illum quem trans æquor Atlanticum, Hispanorum nautæ frustra quærebant, nautam hunc felicioremn, non fabulosas inter insulas sed Academicæ juventutis in amore perpetuo, in amore mutuo, invenisse crediderim. Trans occidentis amplum illum sinum, levi phaselo vectus, diu naviget; nautili illius ritu, quem versibus tam pulchris descripsit, indies 'per ampliora ad altiora' tendat. Suam Academiam, per tot sæcula feliciter conservatam, intra paucos menses carmine sæculari iterum celebret, diuque superstes ipse exornet; nostræ denique Academiæ honoris causâ adscriptus, diu et nostrum et totius litterarum reipublicæ ad fructum floreat, vigeat, valeat, litterarum doctor, Oliver Wendell Holmes."—*British Medical Journal*, June 26, 1886.

Medical Knights Bachelor.—The honor of Knight Bachelor has been conferred by the Queen upon the following gentlemen: Surgeon-General T. Longmore, Professor of Military Surgery, Netley Hospital, Dr. E. H. Sieveking, Mr. W. White Cooper, and Dr. Douglas Maclagan, Professor of Medical Jurisprudence in the University of Edinburgh.

Dr. Gudden, who lost his life in an effort to rescue King Ludwig, of Bavaria, from drowning, was a man well known to students of medicine by reason of his contributions to science. He originated a new method of research known as the "atrophy method," which has been of great service in elucidating the difficult problems of brain anatomy.

The Department of Medicine of the University of Vienna has had a steady increase in the number of its medical students since 1878, until in 1885–86 the number was 2673.

Quain's Dictionary of Medicine is about to be translated into Italian by Dr. Tamburini, of Milan.

The Buffalo General Hospital has lately had a bequest of $20,000 from the late Francis W. Tracy.

Death of Melsens.—The distinguished chemist, M. Melsens, has just died in his seventy-second year. He was the author of the cure of mercurial and lead poisoning by the administration of iodide of potassium, and other important discoveries.

Honors to a Dentist.—The Queen has conferred the honor of knighthood on Mr. John Tomes in recognition of his eminent services to the profession of dentistry.

Medical Nonagenarians.—The deaths of two venerable members of the medical profession in Ireland have recently occurred. On June 2, Dr. James Apjohn, lately Professor of Chemistry in the University of Dublin, and for many years representative of that University in the General Medical Council, died at the age of ninety-one; and, also in June, Dr. Richard Grattan, senior Fellow of the King and Queen's College of Physicians in Ireland died in his ninety-eighth year.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JULY 3, 1886.

Green, E. H., *Passed Assistant Surgeon.*—Ordered to Naval Laboratory at Brooklyn, temporary duty.

Brown, J. M., *Medical Director.*—Member of Retiring and Examining Board.

Ogden, F. N., *Assistant Surgeon.*—Ordered to "Juniata."

Siegfried, C. A., *Surgeon.*—Three months' leave abroad.

Hall, J. H. H., *Passed Assistant Surgeon.*—Detached from Museum of Hygiene, ordered to Naval Asylum at Brooklyn.

Wentworth, A. R., *Assistant Surgeon.*—Detached from "St. Louis," and ordered to "Brooklyn."

Decker, Corbin J., *Assistant Surgeon.*—Ordered to "St. Louis."

Berryhill, T. O., *Assistant Surgeon.*—Ordered to Museum of Hygiene.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JUNE 29 TO JULY 3, 1886.

PROMOTIONS.

Brown, Joseph B., *Lieutenant-Colonel and Surgeon*.—To be Surgeon, with the rank of Colonel, Jan. 24, 1886.—*Circular A. G. O.*, June 28, 1886.

Heger, Anthony, *Major and Surgeon.*—To be Surgeon, with the rank of Lieutenant-Colonel, Jan. 24, 1886.—*Circular A. G. O.*, June 28, 1886.

Vickery, Richard S., *Major and Surgeon.*—Assigned to duty as Surgeon, in charge of Army and Navy General Hospital at Hot Springs, Arkansas.—*S. O. 150, A. G. O.*, June 30, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLIX. SATURDAY, JULY 17, 1886. No. 3.

ORIGINAL LECTURES.

THE OPPOSITION TO EXPERIMENTS ON ANIMALS.

Extract from the annual oration "Impediments to the Progress of American Surgery," delivered before the Academy of Surgery of Philadelphia, January 4, 1886.

BY R. J. LEVIS M.D.,
SURGEON TO THE PENNSYLVANIA HOSPITAL.

GENTLEMEN: Whilst government aid is withheld from aiding surgical progress, legislation is being actively sought actually to hinder scientific investigation in certain directions. I believe that experiments on the lower animals are essential to the advancement of the science and art of surgery. The resolution adopted by the International Medical Congress of 1881, the largest and most widely representative assembly of medical men the world has ever seen, was: "That this Congress records its conviction that experiments on living animals have proved of the utmost service to medicine in the past, and are indispensable to its future progress. That, accordingly, while strongly deprecating the infliction of unnecessary pain, it is of opinion, alike in the interest of men and animals, that it is not desirable to restrict competent persons in the performance of such experiments." Such men as Virchow, Owen, Huxley, Carpenter, Paget, and Pasteur, have affirmed that "the remarkable advance in medical science and art, during the last twenty years, is due to experiments on the lower animals.

In reviewing the fanatical opposition to physiological experiments on animals it is evident that medicine is a shining mark for the shafts of detraction. A return, recently published, for the year 1883, showed that such experiments were performed in England, Scotland, and Ireland by only thirty-six persons. The inspector's report presents the conclusion that "the amount of direct or indirect suffering from the performance of physiological experiments during the past year was wholly insignificant, and limited to about fourteen or fifteen animals." Dr. Yeo, of King's College, London, says that "we learn from the reports that in 100 vivisections we should find the following numbers arranged to show the amount of pain inflicted:"

Absolutely painless	75
As painful as vaccination	20
As painful as the healing of a wound .	4
As painful as a surgical operation . .	1

No experiments that would cause pain were performed without anæsthesia, excepting a few hypodermatic injections or inoculations with morbid matter, and which were not more severe than a slight needle puncture or a simple vaccination. And yet this well-guarded and humane work has in Great Britain, met with the most vicious misrepresentation and fanatical abuse, and even its absolute and total prohibition is demanded.

It is evident that the fanatical tirade against physiological experiments on the lower animals is simply a Quixotic fight against a word, a name—the unfortunate and often misapplied word, vivisection. The word seems to be used generically to include every physiological experiment that may be performed on an animal, even the simplest and absolutely painless.

A speaker at a recent meeting of the American Society for the Restriction of Vivisection, defined vivisection to be, "the cutting, flaying, pinching, burning, crushing, tearing, bleeding, disembowelling, maiming, and eviscerating generally of living animals." A writer on the subject says: "The very word vivisection is sharp. It is smooth and highly polished, with a keen cutting edge. It tells of a helpless, suffering creature under the steady hand of a pitiless dissector. The skin is flayed away, the quivering flesh carved off, the nerve-trunk pierced with needles, the bare bone sawed asunder. The cries of bitter agony are unheard by the stern operator; the resisting struggles have been foreseen and forestalled. The ghastly work goes steadily on, until, after a while, the silver cord is loosed and the golden bowl broken, and then, at last, all is silent and still."

The disordered brain of another fanatic describes vivisection "as sawing across the back bone, dissecting and irritating the great nerves, driving catheters along the veins and arteries, inoculating with dreadful diseases, cutting out parts of the intestines, stewing and baking in a stove, pouring boiling water into the stomach, boiling or freezing to death, and by mechanical processes reducing the brain to the condition of a recently ploughed potato field." Another violent opponent asserts that one eminent medical authority disapproves of the use of anæsthetics because "an experiment is made more satisfactory when the animal exhibits signs of pain." Cardinal Manning gives the opinionated statement that experimenting on animals "is a detestable practice, not attended with any scientific results;" and Chief Justice Coleridge dogmatically asserts that "the practice is displeasing to Almighty God."

At the meeting referred to, of the American Anti-vivisection Society, one, said to be a medical man, communicated his views by saying that, "unrestricted vivisection should only be tolerated in a community of devils." A speaker at the meeting made the exaggerated statement that "thousands of animals are yearly sacrificed in order to show to students what is stated in their text-books is true." A medical speaker next said, referring to a case of severe illness in his own family, "that vivisectors are less capable of managing such diseases than ordinary intelligent physicians . . . . visionary in their ideas, prejudiced in their aims, and illogical in their conclusions." Another medical speaker said, "the argument of the vivisectionist is that he learns to save men by flaying and disembowelling brutes. An experiment," he said, "is to thrust a trocar into an animal's heart, causing the blood to spurt five

or ten feet, and the students are asked to notice how far the action of the heart expels blood." And this same speaker, who tells us of the fondness of medical men for all this brutality, gives us to understand that their bloodthirstiness is not limited to the sufferings of brutes. He says, "the amphitheatre of my own lecture-room is crowded whenever I have to perform a surgical operation which covers the floor with blood for an hour or two; but when I bring all the resources of what I have been able to gain from a life of study, that would do away with the necessity for such an operation, I find that the amphitheatre is about half filled. Let it be known that a surgeon is going to cut some poor sufferer for a couple of hours, and an operating room is crowded."

With such inflammatory and specious trash is the fanatical flame fed, and the noblest and most humane of all human occupations is insulted and traduced. Truly, detraction does love a shining mark!

It is to be regretted that the most of the sensational misrepresentations in regard to experiments on animals have been spread before the community by members of the medical profession. From the most insensate indifference to the unnecessary sufferings of animals everywhere about us, merely for the sake of our pleasures or caprices, the community has had its tenderest and most humane sympathies aroused to a hyperæsthetic pitch.

Among the sympathizing audience at the meeting referred to, whose hearts were in such anguish, horror-stricken at the recital of medical atrocities, sat some with feathery decorations, to yield which many birds had been painfully slaughtered, or from whose living and bleeding bodies the plumage had been torn. The night of meeting was midwinter, and many fur-bearing animals that had died by gunshot wounds or had perished after struggling for life, in traps, contributed their pelts for the sake of comfort or fashion. But all this unheeded suffering, at the price of blood, was inflicted far away, and it mattered not, for the wearers had nothing to do with it. Perhaps some of the sympathizers with brute suffering had been at dinner "with good capon-lined," and, after being drawn homeward by emasculated equines, would sup on terrapins that had met death in its most horrible form, by the customary practice of scalding. But this is only an every-day, household practice of vivisection by the cook, and not by the doctors; and so neither societies nor legislation are required for prevention.

Whilst on this subject, it occurs to me to quote Sir Henry Thompson's comments in regard to the popular vivisection of the Strasburg goose, with its feet fastened to a board near a fire, and stuffed until its hypertrophied and fat-degenerated liver becomes a luscious morsel for the "pâté de fois." He says, "I would strongly commend the condition of these poor brutes to the consideration of the antivivisection society, since more disease is produced among them, in order to furnish our tables with the 'pâté,' than by all the physiologists in Europe, who in the interests, not of the human palate, but of human progress, as effected by therapeutic knowledge, sometimes propagate and observe certain unknown forms of disease amongst a few of the lower animals."

It is admitted that in experimental investigations, performed on the lower animals, the infliction of pain may in a few and rare instances, be unavoidable; but it seems remarkable that those few cases should attract so much exclusive sympathy whilst millions of instances of the most relentless and unnecessary cruelty continue to be inflicted without an appeal from humanity. No cruelty practised elsewhere throughout the world equals the sufferings of cattle in the winter season in our Western States and Territories. A writer in a recent agricultural journal says: "Cruelty to animals in the city of New York, in its extent and enormity, compares with cruelty to animals in the great West as an infant's breath compares with an Arctic blizzard. Millions on millions of cattle, warm-blooded, sensitive—that jump at the prick of a pin—are turned out by the remorseless owners to gather scant herbage where snows and frosts and fierce winds make life a protracted agony. Does anybody doubt that domestic animals suffer intense pain when exposed, without protection, to an atmosphere five to fifty degrees below zero? In those regions hundreds of thousands are turned loose without shelter and without food, except such as they can gather in the frosts and snows and fierce winds that torture and often terminate the lives of men and beasts. They have buffeted the storms of this terrible winter, and now, with sunken eyes and bended backs and protuberant bones, are lying down to sleep their last sleep, and have passed through the intensest agony animal life is capable of."

"Let the same protracted suffering, the same degree of torture be inflicted by some new process, some unaccustomed method, and we would denounce it with one accord. If cattle never had been forced by cruel owners to gather their living where a decent living could not be found; if never before had they been compelled to make their beds in snow, when the thermometer was below zero, and the wind like a scourge of thorns, the first man who deliberately put them to that torture would be pronounced a 'monster of cruelty.' The birds which go south in winter, and the buffalo that migrates to milder regions as cold weather comes on, are far wiser than the herdsmen who force their stock to buffet the almost arctic winter, preventing them from wandering to milder climates if they could."

Mr. John Bright, of England, is authority for the statement that sixty thousand camels perished by starvation and suffering during one of the Afghan wars. It is estimated that half a million of pigeons are yearly shot from traps in Great Britain for the sake of mere sport. Whilst in southern Florida, last spring, I met a professional bird hunter who had recently sent to a northern market the ornamental plumages of nine thousand birds, and during a number of previous years accomplished about the same—an enormous vivisection for Fashion's sake!

So the enormous cruelties to animals, by exposure, goading to labor, branding, castrating, plucking of feathers, stuffing to produce disease, and painful methods of slaughter, continue without attracting more than very slight attention.

Such vast cruelty that is passed by with disregard and apathy, when contrasted with the intense sympathy for the occasional suffering of an animal, inflicted in a humane cause, impresses one with a curious antithesis that exists in human nature. The collective commission of extreme sins by great numbers is overlooked, whilst

a small transgression by one individual meets with universal execration. The collective homicides of war are applauded as but attractive romance, whilst only single-handed murder is properly abhorred.

In an address on vivisection, Dr. Keen, one of the Fellows of this Academy, well said, "To grow better, we must try new methods, give new drugs, perform new operations, or perform old ones in new ways; that is to say, we must make experiments. To these experiments there must be a beginning; they must be tried first on some living body, for it is often forgotten that the dead body can only teach manual dexterity. They must be tried either on an animal or on *you*. Which shall it be? In many cases, of course, it is perfectly legitimate to test probable improvements on man first, although one of the greatest and most frequent charges against us doctors is that we are experimenting upon our patients.

"But in many cases they involve great risk to life and health. Here they cannot, nay, they must not, be tested first upon man. Must we, then, absolutely forego them, no matter how much promise for life and health and happiness they possess? If not, the only alternative we have is to try them on the lower animals; and we would be most unwise, nay, more, we would be cruel, cruel both to man and to animals, if we refused to pain, or even to slay a few animals, that thousands, both of men and animals, might live."

"Who would think it right to put a few drops of the hydrochlorate of cocaine, a year ago almost an unknown drug, into the eye of a man, not knowing what inflammation, or even loss of sight, might follow? Had one dared to do it, and had the result been disastrous, would not the law have held him guilty, and punished him severely? But so did Christison with Calabar bean, and well-nigh lost his own life. So did Toynbee with prussic acid, and was found dead in his laboratory." The wonderful and unique properties of cocaine were first tested on animals, and its beneficent application to human suffering soon followed.

We cannot believe that all those totally opposed to experiments on animals have the wicked intent of stopping all surgical progress, but some would simply prefer that the investigations should be made on human beings—of course, on others than themselves. To such, the recent earnest proposition to utilize condemned criminals for cholera experiments should find a congenial response. The *Indian Medical Gazette*, of last September, states that from three hundred to four hundred persons in India are judicially sentenced, every year, to suffer death; that, taking one day with another, not a day passes without the execution of one individual. So the material for human vivisection is abundant, and ready to present itself voluntarily, as commutation of the death sentence is proposed to the victims who may be so fortunate as to recover.

As to the oft-repeated assertion that nothing has been gained to science or to humanity by experiments on animals, it cannot be denied that to such manner of investigating is due our knowledge of the means of relieving human suffering by some of the most valuable anæsthetics and by hypodermatic injection; and so, also, has been discovered the action of most of the new remedies that have been added in the last twenty years, such as chloral, nitrite of amyl, nitro-glycerine, iodoform, eserine, caffeine, jaborandi, paraldehyde, antipyrin, and cocaine.

So far as legislative restriction of experiments on animals is concerned, I believe that the members of the medical profession need no legal restraint, and that the matter may well be left to their humanity and honesty of purpose. If experiments on animals should be performed by improper persons, wantonly and without scientific and humane objects, then the existing statutes against inflicting cruelty are all-sufficient.

If legislative restriction were really needed to satisfy sentimentalism, the bill, as presented at the last session of the Pennsylvania Legislature, is not, in its provisions, objectionable; and there was a general consent to the bill by those in the profession who take the greatest scientific interest in its subjects. But it was distinctly understood that this consent was with the agreement that further agitation of the subject should end with the passage of the bill. To this the advocates of the measure would not consent, and it is evident that they intend to continue to agitate and appeal for the absolute prohibition of experiments on animals. The same unsatisfied and violent opposition continues to exist in England since the final adoption of the laws on the subject.

ORIGINAL ARTICLES.

A CONTRIBUTION TO THE STUDY OF HAY FEVER (SO-CALLED).[1]

BY BEVERLEY ROBINSON, M.D.,
OF NEW YORK.

THE pendulum never swings in one direction too far, unless it goes out of the way in the opposite direction almost to an equal extent. As applied to our appreciation of the real nature and correct treatment of so-called hay fever, this statement is specially illustrative, and as true as any dogmatic affirmation can be in matters medical.

Not very long ago, scarcely anyone thought of a different etiology of the painful periodic paroxysmal attacks of sneezing, coughing, and dyspnœa characterizing this disease from that which inheres in the vitalized pollen granule of flowering plants and grasses. At present this external irritant is regarded by the most advanced workers in rhinology merely as one of many local excitants, and among these as possibly by no means the most active. Changes of temperature, of light, of winds, of electricity and barometric pressure, are said equally to hold a determining influence in bringing on these attacks. Yet none of these external agents is sufficient to produce hay fever, unless there also be present a highly excitable vasomotor centre. This nervous centre may have become diseased primarily, so that the slightest direct or reflected irritation, whether it be from an external agent, bodily disease, or psychical impression, may be sufficient to render it unduly excitable, and thus give rise to the combined symptoms of hay fever. Numerous experts, however, have now come to regard the main source of this disease as being in the nasal fossæ. Normally, as

[1] Read before the Section of Laryngology and Rhinology of the New York Academy of Medicine, Jan. 22, 1886.

we know, these passages are irritable; but this degree of sensitiveness is inadequate to cause attacks of hay fever, something more is required. There should be at least a hyperæsthetic condition of the pituitary membrane, or marked morbid changes under or about it should be present. From this standpoint, the whole category of nasal affections has been gone through with before one has finished counting proximate causes of hay fever. This ultra view would not be so objectionable were it not that the immediate consequences to *noses* are disastrous. Everyone is seized with an inordinate desire to operate, and whenever hay fever victimizes a patient, a deviation of the septum, or the slightest turgescence of the turbinated bodies, is immediately shown to be the origin of the trouble, and forthwith radical measures are adopted to rid the patient of structures which are often in reality inoffensive. True it is, however, that an individual frequently does suffer from an intra-nasal condition, which at a given stage is undoubtedly a most important factor in the production of paroxysms of hay fever. Of this fact there can be no contention at the present time, if due consideration be given to the numerous and convincing reports of competent observers. Yet, and perhaps more for this reason than another, it behooves every specialist to be watchful, and *not* willingly to admit that there is no hay fever, unless there be pronounced nasal disease, and that by nasal treatment *solely* this disease can always be obviated or arrested. Already I have seen more than one case which has convinced me how incomplete and erroneous such a view certainly is, and as a further study of this disease I would direct attention to the following facts and remarks:

First. A patient of mine who had had during several years repeated attacks of hay fever, accompanied by conjunctivitis, sneezing, asthma, etc., was affected last summer in a similar manner, about the same period as usual. After these annual attacks had subsided, and until the following year at the same date, my patient had no symptoms of nasal disorder, or of other bodily disease which predisposed her to hay fever, either by direct or reflex irritation. Upon reviewing her history carefully, her attacks were shown to be brought on on each occasion by rapid and considerable changes in the temperature and moisture of the ambient atmosphere.

Second. A gentleman is now under my care who has nearly complete occlusion of both nasal passages, evidently occasioned by hypertrophy of the turbinated bodies, and particularly of the posterior portions of the lower bodies. Until one year ago, and during many previous years, at which time his nasal passages were only partially obstructed by reason of hypertrophic enlargement of the turbinated bodies, there were annual attacks of hay fever. At present, when his nasal passages are almost impervious to air, a great portion of the time the hay fever attacks have entirely disappeared. If the sensitive area of J. H. Mackenzie were in this instance at fault—*i. e.*, the posterior part of the septum and lower turbinated bodies—the attacks of hay fever would probably have persisted and not completely stopped as they have. If Harrison Allen's doctrine that occlusion of the nasal passages is the secret of such attacks can be sustained in many examples, in this one it proves to be insufficient at an advanced stage of the disease to explain the absence of an important series of symptoms. Add to the case referred to by me, two cases reported by Sommerbrodt, in which turbinated hypertrophy existed and the galvanocautery was applied locally in a thorough manner. Despite this operative procedure, the attacks of hay fever occurred with their usual severity.

Third. Nasal polyps may or may not be found in patients who are sufferers from hay fever. When they are present, their removal has frequently been followed by relief from painful recurring paroxysms of this disease. In a number of cases, one of which has come under my notice, the polyps were radically removed without, to any apparent degree, influencing advantageously the return of attacks of an analogous kind either as regards their intensity or frequency. In my case cough and dyspnœa at least were evidently more nearly dependent on a fibroid condition of the lungs and dilated air cells, than they were on a previous condition of nasal obstruction occasioned by polyps. Indeed, the case was really one of bronchitic asthma and emphysema, and not of hay fever. And here it is worth noting what I have certainly observed more than once, that sufferers from bronchitic asthma are also affected at times with a marked degree of nasal obstruction due to nasal catarrh, thickening of the septum, or some other morbid state of the nasal passages. The attack of asthma in these cases frequently begins in the nose and works its way downward until, within a few hours, the constant sneezing, inability to draw air through the nose, watery congested conjunctiva, and contracted bronchi, accompanied by noisy stertorous respiration, approximate them closely with those who are true victims of hay fever. So far as mere symptoms of disease are concerned, how such cases can be distinctly separated from examples of hay fever, I should be unable to say. Of course, when an accurate physical examination is made, the intrapleural and pulmonary conditions are such that we are no longer permitted to doubt as to the true pathogeny of the disease we are called upon to treat. And in the treatment itself we also find verification of our diagnosis, since remedies which remain with little or no effect upon the thoracic dyspnœa of hay fever are of great utility in allaying this symptom even though considerable and chronic structural changes be shown to exist within the thorax. I am glad to note that a distinguished English authority, Sir Andrew Clarke, in the January number of the *American Journal of the Medical Sciences*, points to a view which I have for some time distinctly held—*i. e.*, the close relationship between these two forms of disease. In a series of propositions this author sets forth what he regards as the teaching of a study of hay fever, concerning the pathology of bronchial asthma, holding that it is a neuro-vascular trophic disease, and has its origin in a special vulnerability of the respiratory mucous membrane, of the respiratory nerve centres, and of certain portions of the sympathetic. So it is doubtless in just such instances that we should appreciate how uncertain, and even useless at times,

mere local treatment of the nasal passages will become. Even the galvanocautery cannot be expected to reach the primary source of disease, as the "roots of special vulnerability" are in the bronchial tubes, not in the nose itself. My experience, I am much gratified to find, is in accord with that of Da Costa (MEDICAL NEWS, March 9, 1885), Cohen (*American Journal of the Medical Sciences*, Jan. 1885, p. 309), and others. In severe cases of hay fever the asthmatobronchitic manifestations are often unrelieved or but slightly modified by the local use of cocaine, despite the allaying of pruritus, or the *temporary* reduction, at times, of nasal intumescence.

Fourth. In the very large number of nasal affections which are seen in our clinics for treatment of this class of cases, the proportion of those who have had attacks of typical hay fever is relatively small. If this statement be admitted, and it cannot be seriously questioned by anyone who is really familiar with facts of this nature, it is obvious that the morbid intranasal condition is only efficient as a factor in producing hay fever when a predisposition exists which enables certain exciting agents to produce the malady in one class of persons, and yet entirely fails to produce it in others. Again, that these exciting agents are in a remarkable manner *specialized*, seems also proved, since emanations which in one person provoke a severe attack, produce in another, liable to hay fever, no sensible effect. The association of ideas may also awaken a paroxysm of vasomotor coryza, as we find an example in a case of "the production of so-called 'rose cold,' by means of an artificial rose," lately reported by Dr. John H. Mackenzie,[1] of Baltimore. In this, and other somewhat analogous cases, in order to produce such a result there must probably be "a deranged mental impressibility," in addition to an irritable condition of the turbinated bodies. Yet, despite these statements, it is now clearly determined, and widely recognized, by many careful, expert physicians that at or about a certain period of each year these attacks are sure to take place with some individuals, unless they have been submitted previously to suitable local treatment of their nasal passages. Even to this category, however, there are some exceptions, for, as it has already been stated, a few hay fever patients have proved to be wholly refractory to this local treatment, and their paroxysmal attacks have recurred as before, unless they have banished themselves for a time to a particular locality among the mountains, or at the seashore.

Of these two classes of sufferers, we can truly say, the first undoubtedly have nasal disease of some kind, and that the others are entirely free from it in any form, or are affected by it in such a way that we cannot determine its existence by our usual methods of examination. That the first class should be treated systematically for nasal disease is rational and judicious, and owing to wise treatment such benefit will frequently result that they are completely cured, so that they can expose themselves with absolute impunity to all causes which formerly occasioned their attacks. In the second class, continued or energetic treatment of the nose is irrational and should not be carried on, unless it can be reasonably shown that the nerves of the pituitary membrane may be morbidly altered despite our ability to affirm the change except through proper deduction from knowledge of the course and results of treatment in analogous affections of adjacent organs, the structure of which is not unlike. This being admitted, my explanation may now be offered: I do not believe that previous to the time of the attack of hay fever a *morbid intranasal condition*, recognizable by our explorative tests, is invariably present. Yet I am of the opinion that, even in these instances, morbid changes affecting the peripheral nerves may be responsible for the occurrence of symptoms of the disease. These morbid changes I assume to be in their nature *neuropathic*. They are probably inflammatory at times, and not less frequently are, doubtless, such as characterize atrophy of the nerves, or a thickening of their sheaths. I can appreciate the objections which will be immediately urged against this view. What proof have you? In reply I would say, I have just the same degree and kind of proof that I possess for the existence of many neural diseases elsewhere situated. Direct pathological proof, such as the microscope alone can ordinarily afford, I have not. But proof sufficient from the close study of the disease, belongs to me as to others. And this, in the interpretation of hay fever, must be for the while satisfactory, since it is all we have hitherto acquired. In the class of cases to which I refer we can appreciate how there may be hypersensitive areas distributed more or less widely over the pituitary membrane. These sensitive points may then be readily distinguished by contact with a probe or other foreign body. Inasmuch, however, as *irritable areas* cannot *invariably* be discovered in advance of an attack of hay fever (and this statement is the expression of my own clinical investigation), and other sufficient evidences of a determining intranasal causation of these paroxysms are not present (unless my view be adopted), it is logical to infer that if the nasal condition is really the efficient and primary cause of the attacks, it must be owing to an obscure neuropathy (translation of our ignorance) which merely renders the peripheral nerves sensitive to *special* irritants, and yet is only a functional disturbance. The symptomatic condition referred to is, moreover, not unlike one that often occurs in the pharynx, and which I interpret in nearly the same way that I explain some phenomena connected with hay fever.

At present, for example, an adult patient is under my care, in whom the sensation of pharyngeal pains is felt only during the time *cold* air is respired. Pressure, moderate in force, speech, song, deglutition, etc., do not occasion any unpleasant sensations whatever. It is to a certain degree appreciable, therefore, reasoning from analogy, that a paroxysm of hay fever may be induced by very many external irritants, which act primarily through contact with the pituitary membrane, although the proof we discover of nasal disease is limited to (1) the obvious effects of external agents of various kinds; (2) the results derived from the use of topical treatment. If this belief be accepted, it can be easily understood

[1] American Journal of the Medical Sciences, Jan. 1886, p. 57.

that, according to the cause of the attack and the nature of the peripheral nerve changes in the nose, either a local anæsthetic, like cocaine, an alterative, like iron, a mild chemical cauterizing agent, like carbolic acid (as I have elsewhere stated), or the galvanocautery may each or all prove sufficient to bring the attack to a rapid close, if it have already begun, or prevent its occurrence when applied in advance, and in view of the local conditions we are required to treat. The relative utility of the different local agents just mentioned will frequently depend on the nature and situation of the pathological changes in the nose, as well as on the degree to which, if any, they are accountable for the hay fever attacks. In this connection I would cite the judicious remarks of J. Solis Cohen, who, after alluding to the different means employed in removing morbid intranasal conditions, says, "Destruction, however, is not cure, and the production of unnecessary cicatrices may prepare the ground for less benign disease in the future. While instances of permanent relief by these methods are sufficiently numerous, the fact cannot be ignored that cases of *reported cure* are sometimes compelled to seek treatment for recurrence. The choice between reliance upon a satisfactory palliative or resort to operative interference in the chance of permanent relief must be settled between patient and physician" (*American Journal of the Medical Sciences*, Jan. 1885, p. 310). I believe, however, that we have no agent so generally useful as the electrocautery in alleviating or curing cases of hay fever of nasal origin; yet there are cases, especially those of bony obstruction, to which it is altogether inapplicable. In view of a case of intense paroxysmal sneezing, which had lasted for several years, and was probably dependent on, and certainly allied with, a complete obstruction of one nasal passage, mainly by deviation of the cartilaginous septum, and because in this case I made a successful use of the galvanocautery, I am now disposed to include such cases among those occasionally suitable for this treatment. The galvanocautery is, of course, particularly indicated in all instances of considerable or complete occlusion occasioned by hypertrophy of the intranasal soft parts. While I commend the galvanocautery thoroughly in almost all *these* cases, and regard it as greatly preferable in ease of application and subsequent beneficial results to the use of the cold wire snare, I continue to believe that in less aggravated forms of obstructive disease, the hay fever paroxysms may be almost equally well treated by such means as pure carbolic acid or chromic acid. In favor of the primary trial of these agents may be mentioned the facility with which they can be employed, and their less destructive action.

Fifth. Before recognizing the dominant influence of intranasal conditions in determining hay fever attacks, it is essential to question the patient closely, and endeavor to discover if there be any other local or systemic disorder present, which might render doubtful the accuracy of the diagnosis. Of course, if any such disease be found it must first be carefully treated, and until it is fully eliminated in this, or some other manner, as an efficient factor in causing hay fever attacks, we cannot properly estimate the direct power in this direction of the morbid intranasal conditions.

Sixth. In this view, that remarkable protean nervous disorder—central vasomotor disease—should not be overlooked, although our ability precisely to locate it is frequently insufficient. These nervous centres have played an important though exaggerated *rôle* in the physiological interpretation of diseased action during the past ten years or more, and no doubt, partly on this account, many persons are sceptical as regards their influence, whenever it is now alluded to. I am disposed to believe, however, that their control in this disease will always be notable in a considerable proportion of cases, although the extent to which it is exercised is not yet clearly and entirely appreciated in every instance. When, however, it is recognized as being present, it will usually be correct to state that, in these instances, mild topical applications to the nose for the purpose of aborting or preventing attacks of hay fever will prove almost useless. Even though this be true, there will still remain a few among these examples, in which cauterization by means of the galvanocautery, will be curative where the previous means have proved inadequate The full explanation of this fact is doubtless that the cautery reaches and destroys more thoroughly all the morbid tissues and thus abolishes receptivity through the nose, of irritation from numerous foreign substances which previously had acted as excitants of an impressionable nerve centre directly related to the olfactory organ. Of course, when the excitant is purely a psychical condition of which the resultant, so to speak, in a physical way, is the temporary engorgement of the turbinated bodies which gives rise to the different rational symptoms of hay fever, all local medication is to a great extent delusive and unsatisfactory, and at best only palliative.

To sum up this brief paper in reference to hay fever (so-called), I wish to add that I had a single purpose before me in writing it, and that purpose was simply to prevent, if possible, the present current of medical opinion carrying us too far in a right direction, and making us regard every sufferer from hay fever as a case either for somewhat severe nasal operation or continued nasal treatment. Many there are amongst these unfortunates who have no specially sensitive areas to cauterize, no occlusions to destroy, no abnormal septa to cut away, no catarrh to treat. They are simply individuals who, unless evident pathological conditions betray the origin or source of far-removed nasal and other phenomena included in the term hay fever, are still for me obscure neurotics or neuropaths, or those who are *specially* influenced by pollen granules, or by *one* or *more* of a vast number of emotional or psychical influences, external irritants, or *atmospheric conditions*. Nor do I consider it a *retrograde movement* at this time to make such a statement, but rather the act of throwing called-for *weights* into one side of a balance to make *equipoise*, when almost all late observers have been contending in favor of a sound but, in my judgment, too exclusive theory, which is insufficient to explain all cases of hay fever satisfactorily.

THE MORTALITY OF THE CÆSAREAN SECTION,

WHEN THE CONDITION OF THE SUBJECT IS FAVORABLE, AND WHERE THE UTERINE WOUND IS SUTURED SO AS TO RENDER IT IMPERVIOUS TO FLUID, AND TO SECURE AN EARLY UNION OF ITS SEROUS COAT.

BY ROBERT P. HARRIS, A.M., M.D.,
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IN the last American edition of Playfair's *Midwifery*, prepared a little more than a year ago, will be found the following under the heading of "Possibilities of Gastro-hysterotomy:" "Old as it is, the Cæsarean operation is still upon trial, and has by no means attained the minimum mortality of which it is capable under modern improvements as one of the forms of abdominal surgery." When this was written the new method of uterine closure, devised by Dr. Sänger, of Leipzig, was just beginning to attract attention, and it was known to the writer that Dr. Leopold, of Dresden, had operated three times by this plan, with entire success to mother and child. What I then hoped for by this improvement has been more than realized in the Maternity Hospitals of Germany, and I now have the pleasure of presenting a tabular record of sufficient extent to warrant the claim that the old operation performed in good season and with careful uterine closure is by no means "the most dangerous operation in surgery," as was once claimed by a prominent gynecologist before the American Gynecological Society; but is even less fatal than craniotomy in badly contracted pelves. In view of this German record, we cannot endorse the recently expressed claim of Mr. Lawson Tait, that the Cæsarean operation has a mortality of over 99 per cent., and that the hope of the future is in the comparatively safe method of Professor Porro.[1] Thus far there is no general or hospital record in any country to compare with the one herein given. Under the first 28 Porro operations, 18 women were lost, although all but 5 of the children were alive at delivery; and under the first 28 of the second hundred, 16 women and all of the children but 6 were saved; against which we place the saving of 19 women and 24 children out of the first 28 Sänger cases at home and abroad. The best Porro record in any European maternity is that of Milan, where cases 1, 2, and 9 were fatal in a list of 14, under five operators. Under three operators in Leipzig and two in Dresden, the Sänger method shows a record of 6 women and 6 children saved in one maternity by 6 operations, and 9 women out of 10 in the other, with all of the children. The whole record of Germany foots up 21 operations with a loss of 3 women and 1 child.

We are sorry not to be able to write more encouragingly about our own portion of the table, which is rather a dead weight upon the balance; but the fact is, that with but one exception, and that was a cancer case, the prior condition of the women gave the operators little or no hope of success. It is the old story here, try every possible obstetrical expedient first, and then "the forlorn hope" of the knife. Having adopted by degrees the British estimate of the dangers of the Cæsarean section, we have very naturally as the result of dreading its effects, increased our mortality almost to the English measure. This is shown by the changes in our statistical record. We have had, so far as known, 142 operations in the United States. Of the first 70, down to 1866, 37 resulted in the recovery of the women; and of the balance, 72, only 17 had a favorable result. Of the first 70 children, 35 were lost, and of the 72, 42 were found dead. Of the 70 there were 23 *timely* operations, saving 20 women and 20 children; and of the 72, only 10, undertaken early, saving but 3 women, although 9 of the children were extracted alive. By the increased mortality of the last twenty years, we have reduced the percentage results of timely operations from 75, or 21 saved out of 28, to $69\frac{2}{3}$, or 23 out of 33; and the general average of recoveries from $52\frac{6}{7}$ per cent, to a fraction over 38 per cent. It is quite time, therefore, that we should follow the example of the German rather than of the English operator.

In the Cæsarean operation we have really more to fear from the condition of the patient prior to the use of the knife than from the surgery *per se*, and in making a prognosis much will depend upon the answers to the following questions: 1. Is the woman a dwarf? 2. Are her powers of endurance below standard by reason of having been rachitic in childhood? 3. Has her strength been wasted by long-continued uterine action? 4. Has she been subjected to attempts at delivery by the forceps, turning or craniotomy? 5. Has the fœtus died from uterine pressure, and if dead, has it become putrid? 6. Has it been partially delivered by turning or decapitation? 7. Is the woman syphilitic? 8. Are her kidneys unsound, showing albumen or pus in her urine? 9. Has she a uterine or pelvic tumor? and 10. Has ergot been administered? If all of these can be answered in the negative, there is but comparatively little risk in the operation in the majority of cases.

Rachitic dwarfs very soon become exhausted by labor, and require for safety that the operation should be performed as soon as the os uteri is sufficiently open for drainage. Tumor cases are apt to end fatally, but there have been some very exceptional examples in the United States. Cases of impaction of the fœtus in the pelvis in healthy women have generally recovered in our country, even when the labor has been of long duration. This is to be accounted for by the robust condition of the subject and her normal powers of endurance.

The Sänger method of operating requires for success that the woman should be in a *favorable* condition, and that she should not by delay or futile expedients have lost her child. It requires on an average one and a quarter hours to perform the operation, most of this time being expended in securing the uterine wound against the possibility of leakage. This avoids one serious element of danger in the old operation, which depended largely for safety upon the continuance of uterine contraction; secondary inertia and gaping of the wound, often resulting in the escape of fluid into the abdominal cavity, and the consequent death of the patient.

[1] British Gynecol. Journ., May, 1886, p. 19.

RESULTS OF THE CÆSAREAN OPERATION, AS MODIFIED BY DR. SÄNGER, OF LEIPZIG, AND SIMPLIFIED IN ITS PERFORMANCE BY DR. LEOPOLD, OF DRESDEN, AND OTHERS.

No.	Date of operation.	Operators.	Locality.	German cases and deaths.	Age.	Number of pregnancy.	Conj. diam.	Cause of difficulty.	Time in labor.	Conditon of woman at time of operation.	Treatment of muscular edge of uterine wound.	Uterine sutures. Deep	Uterine sutures. Superficial	Result to women.	Result to child.	Time of survival, and cause of death.	References.
1	May 25, 1880	Dr. G. Leopold	Dresden	1	29	2-para	2⅜ in	Rachitic pelvis	About 12 hours	Favorable	Resected	8	12	Recovered	Living	R.	Archiv für Gynäkol., 1882 Bd xix S. 400.
2	Sept 11, 1882	" O. Beumer	Greifswald	2†	41	6-para	Normal	Cervical fibromyoma	8 or 10 hours	High fever	"	7	4	Died	"	40 hours; double pyelo-nephritis	Archiv für Gynäkol., 1882 Bd xx S 409.
3	Oct. 6, "	" H J Garrigues	New York	...	30	1-para	5⅜ in	Kyphotic pelvis	6 hours	Pulse 124	Not resected	12	12	"	Dead	50 hours; shock and previous loss of blood	Am. Journ. Obstet., 1883, vol. xvi p. 344.
4	Sept. 3, 1883	" Munster	Königsberg	3†	32	1-para	.....	Fibro-sarcoma of pelvis	3 days	Unfavorable	Resected	10	15	"	"	4 days; diphtheritic endometritis, and septic peritonitis	Centralblatt f. Gynäk. 1886, Nr. 6.
5	Oct. 4, "	" G. Leopold	Dresden	4	23	1-para	2⅞ in	Rachitic pelvis	8 hours	Favorable	"	7	14	Recovered	Living	R.	Archiv für Gynäkol., 1884 Bd xxiv S 427.
6	Dec. 26, "	" Charles Jewett	New York	...	46	11-para*	Normal	Cancer of cervix	9 "	Pulse 94 to 108	Not resected	20		Died	"	45 hours; septic peritonitis.	New York Med Jour. Aug 29, 1885
7	Mar. 13, 1884	" G. Leopold	Dresden	5	23	2-para	2⅓ in.	Generally contracted pelvis	30 "	Favorable	Resected	20		Recovered	"	R.	Archiv für Gynäkol, 1884. Bd xxiv. S.434
8	July 17, "	" Oberg	Hamburg	6	37	1-para	2⅜ "	Generally contracted pelvis	?	"	"	10	17	"	Twins, 1 liv. & 1 not matured	R.	Ibid.
9	Sept. 29, "	" E. Ehrendorfer	Vienna	...	29	4-para	Normal	Abdominal fibroma	About 2 days	Unfavorable	.....	7	many	Died	Living	6 days; septic peritonitis.	Archiv für Gynäkol., 1884 Bd xxvi. S. 125.
10	Nov. 12, "	" T. M. Drysdale	Philadelphia	...	37	1-para*	"	Fibroid of cervix	2 weeks	Desperate	Not resected	11	11	"	Dead and putrid	26 hours; septicæmia	Operation witnessed by the writer.
11	Nov. 16, "	" M. Sänger	Leipzig	7	21	1-para	2⅜ in	Rachitic pelvis	Some hours	Favorable	Resected	8	20	Recovered	Living	R.	Archiv für Gynäkol., Bd xxvi. Heft 2.
12	Nov. 28, "	" G. Leopold	Dresden	8†	26	2-para	2⅜ "	Rachitic pelvis	22 hours	Unfavorable	Not resected	.....		Died	"	5 days; septic peritonitis.	Centralb für Gynäk., 1885. Nr. 8.
13	Dec. 5, "	" G. Leopold	Dresden	9	23	1-para*	.....	Great deformity of pelvis	16 "	Favorable	Not resected	12	10	Recovered	"	R.	Archiv für Gynäkol., 1885. Bd xxvi. H. 2.
14	July 3, 1885	" M. Sänger	Leipzig	10	32	4-para	2¾ in.	Contracted pelvis	34 "	"	Slight resection	7	16	"	"	R.	Archiv für Gynäkol., 1885. Bd xxvi. H. 2.
15	July 16, "	" G. Leopold	Dresden	11	33	6-para*	.....	Retro-uterine myoma	17 "	"	Not resected	.....		"	"	R.	Archiv für Gynäkol., 1885 Bd. xxviii S. 98.
16	Aug. 2, "	" H Obermann	Leipzig	12	42	1-para	.....	Contracted pelvis	36 "	"	Not resected	8	18	"	"	R.	Archiv für Gynäkol, 1885 Bd xxvii H 2
17	Sept. 6, "	" J. R. Weist	Richmond, Indiana	...	43	1-para*	Normal	Fibroid of cervix, filling pelvis	9 days	Very unfavorable	Not resected	.....		Died	"	24 hours; probably shock and exhaustion.	New York Med. Rec., Mar. 13, 1886, p. 301.
18	Sept. 20, "	" W. H. Parish	Philadelphia	...	35	Multipara	Normal	Three uterine fibroids	42 hours	"	Resected	11	4	"	Dead and putrid	12 hours; exhaustion and septic poisoning	Communicated by the operator.
19	Sept. 26, "	" Schauta	Innsbruck, A	...	22	1-para	2½ in	Contracted pelvis	16 "	Favorable	... .	8	29	Recovered	Living	R.	Wien. med. Wochen., 1886. Nr 2-5.
20	Oct. 20, "	" M. Sänger	Leipzig	13	38	4-para	.....	Contracted pelvis	Labor induced	"	Slight resection	8	29	"	"	R.	Archiv für Gynäkol., Bd xxvii. Heft 2.
21	Dec. 9, "	" M. Sänger	Leipzig	14	35	4-para	.....	Contracted pelvis	Waters broken 3 days	"	Slight resection	7	19	"	"	R.	Archiv für Gynäkol., Bd. xxviii. S. 144.
22	Jan. 10, 1886	" G. Leopold	Dresden	15	20	1-para*	2 in.	Contracted pelvis	12 hours	"	Not resected	20		"	"	R.	Archiv für Gynäkol., Bd. xxviii. S 103.
23	Jan. 25, "	" B. Schultze	Jena	16	32	1-para*	.....	Contracted pelvis	24 "	"	Not resected	8	5	"	"	R.	Archiv für Gynäkol., Bd xxviii. S. 131.
24	Feb. 8, "	" Korn	Dresden	17	30	2-para*	2½ in	Generally contracted pelvis	14 "	"	Not resected	.....		"	"	R.	Archiv für Gynäkol., Bd xxviii. S. 108
25	Feb. 13, "	" Donat	Leipzig	18	34	4-para	2¾ "	Contracted pelvis	14 "	"	Resected	22		"	"	R.	Archiv für Gynäkol., Bd. xxviii. S. 147.
26	Mar. 3, "	" G. Leopold	Dresden	19	29	3-para*	2½ "	Generally contracted pelvis	7 "	"	Not resected	....		"	"	R.	Archiv für Gynäkol., Bd. xxviii. S. 117.
27	Mar. 14, "	" G. Leopold	Dresden	20	28	4-para*	2½ "	Generally contracted pelvis	14 "	"	Not resected	.....		"	"	R.	Archiv für Gynäkol., Bd. xxviii S. 117.
28	April 7, "	" Sippel	Frankfurt	21	32	7-para	.....	Osteomalacie	3 days, waters broken 5 hours	"Good"	.....	12	20	"	" (24)	R (19)	Archiv für Gynäkol., Bd. xxviii. Heft 1.

Summary: German cases, 21. Women saved, 18 Children living, 20
American " 5. " " 0. " " 2
Austrian " 2. " " 1. " " 1

In the cases marked by a (*), the peritoneum was not separated from the edge of the uterine wound, but was simply slid over and welted in, when the sutures were inserted and tied.

Manual compression to check excessive hemorrhage when the uterus is incised, is another measure of safety in the improved operation. There can be no longer any doubt about the importance of suturing the uterine wound, and of using so many stitches that the parts will be securely held together without much individual strain upon the sutures.

The value of the Sänger method as simplified since its introduction will be shown by the fact that Germany has saved out of 21 women in six years, as many cases as have been saved under 75 operations in the United States in twenty-five years.

For a full account of the method of performing the Sänger operation, see the *American Journal of the Medical Sciences*, for October, 1885, page 365.

My investigations, which commenced in 1869, soon satisfied me that a great element in the production of fatality in the Cæsarean operation was fear of its consequences, and the consequent postponement of its performance until it was too late to hope for success in a large proportion of cases. In the early days of our country, there were many more *timely* operations and consequently a lower degree of mortality, but of later years the *scare* has become greater under the almost universal teaching of obstetrical writers and lecturers, and we have been reaping the fruits of it as shown by the fact that but 7 women recovered in the last decade, out of a total of 35, or exactly 20 per cent., and that 23 of the children were either dead or in a moribund state at delivery; we have now about reached the mortality of Great Britain, and ought to take active measures to "face about." Let the obstetrical professors in our colleges teach these facts to their classes, and the time will come when the operation deprived of its dangers shall have a much better reputation for safety. If up to twenty-five years ago we saved more than 50 per cent. of the women, we ought to do better than this under the safer methods of Germany. It is a great satisfaction to me to find that the views I have long held and contended for have been at last established by actual results.

In the opinion of Schauta, of Innsbruck, an important element of success in the Sänger operations has been the employment of silver wire as the material for the deep uterine sutures, in almost all of the successful cases. This secures the wound against gaping, as the material will not stretch. and is not inclined to cut into the tissues. The credit of first using silver for this purpose is due to the late Dr. Frank E. Polin, of Kentucky, whose successful operation was performed in December, 1852. Several women were subsequently saved by the same material, and one patient twice; but of latter years silk has almost entirely taken its place here, with a much higher rate of mortality as the apparent result. Suturing the uterine wound has become almost universal in the United States, but to very little purpose. There is no use in employing catgut—putting in silk stitches an inch apart—or very little in inserting them at all in the desperate cases in which they have generally been tried. As long as obstetrical lecturers will teach their students to use first the forceps, then try craniotomy, and in the event of failure to deliver by the Cæsarean section, in cases of marked pelvic obstruction, we must not hope for a moderate rate of mortality from the last expedient.

A CASE OF LYMPHADENOMA—HODGKIN'S DISEASE.

By GUY HINSDALE, M.D.,
of Philadelphia.

Dr. Hodgkin, of Guy's Hospital, first published, in 1832, in a paper entitled "Some Morbid Appearances of the Lymphatic Glands and Spleen,"[1] an accurate description of four cases of the disease which is now generally known by his name. This paper did not, until within the last ten years, attract very general notice. Dr. Wilks, however, in a paper read before the London Pathological Society in 1878, called especial attention to Dr. Hodgkin's paper, exhibited the original specimens preserved in Guy's Hospital Museum, and called the disease by Dr. Hodgkin's name.

In Dr. Wilks's paper there are records of a large number of cases reported by Greenfield, Gowers, Coupland, and others. Dr. James Hutchinson[2] has recorded a remarkable case of this disease, and a full table of the bibliography of the subject. Dr. William Osler has also treated the subject systematically in an article in Pepper's *System of Medicine*.

The case which I wish to record is as follows:

Lou. H., a German, aged thirty-five, was admitted to the Episcopal Hospital, Philadelphia, during the service of Dr. F. P. Henry, on June 14, 1882. He said he was a boilermaker, single, and he denied specific disease. His affection began about six months previously, when he noticed an enlarged gland in the left axilla which occasioned smarting pains. The glands in the right axilla became next invaded, and later those of the arms and neck, all of which at the date of admission were enormously enlarged, producing œdema of the right arm. A fortnight before this he began to have pain in the chest on deep inspiration.

The patient's condition on admission to the ward was bad. Although his tongue was clean, his bowels were constipated. The veins of the abdomen were slightly enlarged below the umbilicus. Splenic dulness was increased in extent, and there was pain on pressure. Liver dulness extended from the sixth right interspace to the border of the ribs, pressure below this line caused pain.

There was great impairment of the percussion note on the whole of the left thorax anteriorly and posteriorly with ægophony and tubular breathing at both apices. At the right base fremitus was absent, and the percussion note was absolutely flat. Respiration tubular and much prolonged. Change of position changed the area of dulness. The heart was normal.

The skin was very dark and was generally covered with a papular rose-colored eruption which itched intensely, causing him to tear his skin in a reckless manner, and leaving him literally covered with discolored scars and excoriations. The urine did not

[1] Trans. Medico-Chirurg. Society, vol. xviii. p. 68.
[2] Trans. Coll. Physicians of Phila., third series, vol. i. 1874.

contain albumen, was acid, light yellow, having a sp. gr. of 1.022.

The blood was examined on the day after his admission by Dr. Henry, with the following result: Number of red corpuscles per c. cm. 4,440,000, about normal. Proportion of white to red, 1 to 254. The treatment adopted was five minims of Fowler's solution of arsenic twice daily and the external use of tincture of iodine upon the glands.

During the six weeks of his life in the hospital the measurement of his neck increased just below the thyroid cartilage from 15½ in. to 16¼ in., and then subsided to 14½ in.; from the occiput over the chin 18¾ in., increasing to 19¼ and falling to 17½. The axillary glands and, to a less extent, those in either groin increased in size and were the seat of occasional stabbing pains. Œdema, however, progressed, first in the arm, next invading the scrotum and prepuce, right foot and further up the limb to the groin, where the glands about Poupart's ligament had become enlarged. Finally, both legs and the whole right side became œdematous; the dyspnœa, which had always been marked, increased and swallowing became almost impossible. The right pleural cavity filled with fluid. The man gasped for breath, screamed with terror, and cried for a knife that he might end his life. On July 28th he died.

At the autopsy the body was seen to be fairly well nourished. Œdema, from the genital region down, was extreme. The skin was excoriated and covered with a papulo-squamous eruption. The glands of the neck were noticeably enlarged. The thorax contained three or four quarts of fluid and shreds of lymph in the pleural cavities, especially in the left. The left lung was carnified and much compressed. The pericardium was filled with fluid.

The heart was normal, weighing 10¾ oz. There were two small glands at the base about the size of large peas. Above the arch of the aorta was a mass of enlarged and indurated glands, filling the mediastinal space and intimately bound to the trachea, œsophagus, and great vessels. One had undergone cheesy softening.

The liver was of normal color, weighing four pounds five ounces. On section nothing unusual observed. The kidneys weighed 6½ and 7¼ ounces respectively and were intensely injected.

The spleen weighed 12½ ounces, was irregular in shape; not unusually friable. Numerous nodules of a color lighter than the spleen substance studded both surfaces, and varied from the size of a pea to that of a hickory nut. On section larger bodies were found, one being as large as a pigeon's egg. The pancreas was of normal size and appearance.

The mesenteric glands were numerous and very much enlarged. They lay in a mass transversely. A large number of glands situated in front of the vertebral column and on both sides of it seemed to exert a certain amount of pressure on the vena cava. The glands of the groin on both sides were enlarged and indurated, and exerted during life great pressure on the adjacent bloodvessels. On section they were tough, of a gray color tinged with yellow. They were not matted together but of quite distinct form, their size varying from that of an egg to that of a pea. Microscopic examination showed a uniform transformation of the cell elements into a homogeneous glistening material not unlike amyloid.

My colleague, Dr. H. A Kelly, called my attention to a chronic ulcer about the size of a half-dime, situated just within the left nostril at the alar angle. From both nostrils a thin puriform discharge exuded.

As to the nature of this affection, Hodgkin gave his opinion that, structurally, it was a gradual increase of every part of the gland. The latest definition of it is that it is a progressive hyperplasia—an enormous increase in the cellular elements—of the lymph-glands, sometimes also of the spleen with anæmia and the development of secondary lymphatic growths, involving groups of glands in succession in various parts of the body.

It must, however, be distinguished from syphilitic or scrofulous adenitis. In Hodgkin's disease the glands are at first isolated, later becoming agglutinated. The formation of pus is said not to be usually met with, and caseation is extremely rare. Ordinary adenitis pursues a more rapid course at first, and may last for years in a single group, frequently terminating in suppuration without extending to other groups of glands.

Anæmia is common in Hodgkin's disease; the highest blood count which I have seen is in the case which I have recorded, while other cases have shown a reduction of the red globules by one-half or even more. The presence of a nearly normal proportion of the white corpuscles has given this disease also the name of pseudo leucocythæmia.

Retinal hemorrhages are uncommon, while bronzing of the skin, due to the pressure of the glands upon the solar plexus, is not unusual.

But the characteristic feature is the glandular enlargement. Once seen, such a case produces an indelible impression. The neck proper is lost in the huge tumor which extends upon the shoulders disturbing the circulation, perhaps compressing the trachea, possibly even, as in one case, compelling tracheotomy.

The prognosis is bad and the treatment futile. The etiology is involved in great obscurity. Virchow[1] believes that otorrhea usually precedes the cervical enlargement. In view of the ulcer of the mucous membrane of the nose in the case herein reported, it is worth noticing that Mosler inclines to a belief in a local origin of this class of diseases and describes a "stomatite et pharyngite leucemique." Jaccoud,[2] in his description of leucocythæmia, states that often the mouth or pharynx is affected with an ulcerous inflammation having a tendency to hemorrhage. Moreover, he states that the etiology of pseudo-leucocythæmia, Hodgkin's disease, is unknown. Cornil[3] has observed in a case of leucocythæmia an infiltration of the Schneiderian mucous membrane producing a nasal lymphorrhœa. Trousseau gives instances in which chronic irritation of the skin, otorrhea, chronic nasal catarrh, pharyngitis, or irritation of a decayed tooth, gave rise to local glandular swelling which preceded the general development of the disease.

[1] Virchow. Quoted in Trans. Lon. Path. Soc., vol. xx. p. 375.
[2] Jaccoud. Path. Interne, tome ii. p. 842. Paris, 1867.
[3] Cornil. Revue Médicale, Aug. 11, 1883.

HOSPITAL NOTES.

NOTES FROM THE PARIS HOSPITALS.

(Specially reported for The Medical News.)

REMOVAL OF UTERINE TUMORS PER VAGINAM.

M. Péan gave an interesting clinical lecture a few days ago at the Saint Louis Hospital, on ablation of fibrous tumors or myomata of the uterus, *per vaginam*. He began by stating that it is generally believed that fibrous tumors of the uterus ought not to be removed until they cause great disturbance. This belief is founded on another equally erroneous, which supposes that these tumors are frequently met with and rarely cause much suffering, as they develop slowly, especially in women who have passed the menopause. Those surgeons who see a considerable number of cases do not share these illusions, but can testify that fibrous tumors cause much suffering, render life intolerable, and shorten it more frequently than is commonly supposed.

M. Péan says that after a long experience, after having witnessed the suffering and disturbance these tumors cause, he has come to the conclusion that the surgeon who succeeds in removing them, at the onset, before they become developed, without endangering the life of the patient, renders a greater service to humanity than all the others who perfect methods of operation for removing them when they are fully developed. During some years M. Péan has put in practice these opinions; the results have been most satisfactory. M. Péan does not include small submucous pediculated tumors, only sessile interstitial tumors, forming a projecting, convex mass in the uterine cavity. In such cases, even when the neck of the uterus is just sufficiently dilated to enable the operator to pass his finger, it is impossible to ligate the tumor. There is only one resource, ablation; the tumor must be removed bit by bit. The greatest proportion of fibrous uterine tumors pass unnoticed during the first period; it is not until they cause a bulging above the pelvis that they are recognized. There are a certain number of these tumors which, without being large, cause hemorrhage, compression of the bladder and rectum, and endanger life. The diagnosis is easily made, and surgeons generally seek to arrest the progress of the tumor by medical treatment, but they do not succeed. When the symptoms become serious they remove the tumor by gastrotomy.

M. Péan removes interstitial fibrous tumors *per vaginam*. If the neck of the uterus is not naturally sufficiently dilated he dilates it artificially, or, if necessary, incises it; the surface of the tumor is then seized by forceps made expressly for M. Péan by Mathieu; these forceps take hold of it as close as possible to the muscular coat and crush the vessels which proceed from this coat to the tumor and mucous membrane, which covers it; the portion of tumor thus seized is then enucleated, a second pair of forceps is placed above the first and another portion is enucleated, a third and fourth pair are placed in the same way until the entire morbid mass is removed. When necessary one or two pairs of forceps can be kept in place to assure hæmostasis.

This method has been frequently adopted by M. Péan, but is only applicable when the tumor forms a projecting mass in the uterus. When interstitial tumors are not sufficiently developed to be seized by the forceps, they may nevertheless be removed *per vaginam*. The neck of the uterus should be dissected out and laterally incised on both sides so as to be able to penetrate into the cavity of the uterus; the tumor can then be enucleated without danger of hemorrhage by using the forceps. If the tumor, instead of developing in the uterine cavity is more external, near the vesical and rectovaginal septæ, or even in the peritoneal sac, similar to subserous fibroids, another method should be adopted. The neck of the uterus should be dissected out in its circumference, incised on both sides, the tissues that cover the inner surface of the neck of the uterus should also be dissected, and, if necessary, the peritoneal sac opened. While this operation is going on the parts must be kept out of the way by the retractors, and hemorrhage prevented by the use of pressure-forceps. Care is needed to avoid injury of the rectum, ureters, and bladder. When the inferior surface of the tumor is perceived M. Péan makes a deep incision, then seizes the tumor with dentated forceps; the tumor is then removed bit by bit. Sometimes the mass removed is as large as the head of a nine months' fœtus. Hemorrhage is often abundant, and the important vessels must be then compressed by forceps. The peritoneal incision is left open for some time in order to allow the fluids to escape.

MEDICAL PROGRESS.

Anomaly of the Pupillary Reflex in Dementia Paralytica.—Morselli (*Gaz. degli Ospitali*, Feb. 21, 1886) reported a case before the Royal Academy of Turin of an individual who was an insane paralytic, whose pupil dilated when exposed to the light instead of contracting as usual.

Moss thought that this fact might prove a psychical action.

Reymond said that a trifling brief dilatation of the pupil takes place in the ataxic. Also the first effect of eserine is a slight and rapid dilatation of the pupil.

Morselli observed that his case could not be explained by either of these two interpretations.—*Journal of Nervous and Mental Disease*, May, 1886.

Treatment of Asthma by Cauterization of the Nasal Mucous Membrane.—At the session of the Berlin Society of Internal Medicine, held May 17, 1886, Dr. Zublinski presented a memoir on the subject above stated. The results obtained in his personal practice may be thus summarized:

He had encountered 143 cases of asthma complicated by diseases of the upper air-passages, in which operative treatment directed to the latter disorders was frequently productive of good results in the chief disease. The cases are classified as follows:

Asthma associated with hyperplastic rhinitis, 55 cases; 8 cured, 3 improved.

21 cases with granular proliferation of the inferior turbinated bone; 6 cured, 4 improved.

11 with similar lesions of the middle turbinate; 5 cured, 2 improved.

9 with disease of the septum and 5 with tonsillar hypertrophy; 2 cured, 1 improved.

28 with various lesions of the pharynx; 3 cured, 1 improved.—*Journ. des Sociétés Scientifiques*, May 26, 1886.

CONSTIPATION IN INFANTS is thus discussed by various contributors to recent numbers of the *British Medical Journal:*

Dr. W. R. Cossham has generally found much benefit from ordering the infant to be fed every morning with a cupful of gruel, which may be sweetened with treacle or honey. Further help is obtained by giving a teaspoonful of cod-liver oil twice a day, and using friction over the bowels every night with olive oil on the palm of the hand. An occasional morning draught may also be necessary, such as tinct. podoph. ♏iij (gr. ij ad ℥j); pulv. ipec. gr. ¼; glycerini ℥j; aquam anisi ad ℥ss.

L. suggests two or three meals of "Mellin's food," daily. He has found this useful, and has long since dispensed with drugs as much as possible in the treatment of some troublesome cases. If the infant is being nursed, two or three meals a day will be sufficient, and these may be dispensed with as soon as the object is attained, and resumed if necessary; but if it be living upon artificial food, "Mellin's food" should be substituted.

Mr. E. Gibson Berkley says that the liquid extract of cascara sagrada, combined with minute doses of tincture of nux vomica, and made palatable with a little syrup of lemon or glycerine, will be found very useful. It should be given two or three times a day.

Sign-Post recommends feeding the infants on well-made oatmeal gruel and milk, in proper quantities, and at intervals. For an infant from four to six months old, he advises half the feeding-bottleful of milk, with the same quantity of oatmeal gruel, to be given every four hours. The directions for preparing the gruel are as follows: Take a teaspoonful of the common coarse, but sweet (not bitter), oatmeal; let this soak in a little more than a tumblerful and a half of cold water for some hours, say all night; then place this meal, and the water, in a clean, covered saucepan capable of holding double the quantity of the liquid poured in; place the saucepan near the fire, so as to heat the contents slowly, and after a time place it on the fire, and stir the contents, until, and for a minute or so after, it boils; then pour the contents on to a horsehair sieve; the creamy gruel is made.

Mr. M. F. Bush advises a spill of paper dipped in castor-oil about two or three inches, and inserted into the lower bowel. It should be used every day for a time.

LARGE DOSES OF DIGITALIS IN PNEUMONIA.—In a Roumanian medical journal, *Spitalul*, February, 1886, DR. I. ANTONIU, of the Military Central Hospital in Bucharest, describes an interesting case of a weak soldier, aged twenty-three, who was admitted to Prof. Z. Petrescu's wards about twenty-four hours after an initial severe rigor, with grave (*forte alarmâtóre*) general and local symptoms of pneumonia. At once an infusion of digitalis (four grammes of the leaves to two hundred grammes of water, the whole to be taken in frequent doses during the day) was given. The same treatment was pursued during the next day (the third of the disease). On the morning of the fourth day the temperature suddenly fell from 39.5° C. to 36.3° C., and the pulse from 92 to 60 a minute. On the fifth, the temperature was oscillating between 36.3° and 37°, a marked amelioration in the local symptoms being observed. On the sixth, the patient's general state was quite satisfactory. On the tenth, he was practically well, but was retained under observation for other eight days. For several days the pulse continued to be as slow as 44 to 48 a minute, it being still 52 twelve days after the last (second) dose of the drug.—*London Medical Record*, May 15, 1886.

PAINLESS EXTRACTION OF TEETH WITH THE AID OF COCAINE.—BIGNON records several cases in which teeth were extracted without pain by the subgingival injection of a twenty per cent. solution of cocaine benzoate. The method as at present practised, seems somewhat complicated, but is probably capable of simplification. A preliminary injection of two or three drops of the solution named is made in the internal portion of the gum of the carious tooth. After waiting forty seconds to one minute, a second injection of the same amount is made at the same point, but somewhat deeper. After a second delay of one minute the tooth is removed. The second injection is not felt. It is interesting to note that no unpleasant results have been observed from this method, although the equivalent of three-quarters of a grain of the alkaloid was used.—*Les Nouveaux Remèdes*, May 1, 1886.

REFLEX NASAL COUGH.—In a paper thus entitled, MR. E. C. BABER presents, in *The Practitioner* for July, 1886, the following conclusions based upon the clinical study of six cases:

1. Reflex nasal cough is only exceptionally produced by probing the anterior part of the inferior and middle turbinated bodies and the tubercle of the septum.

2. In children it is not very uncommon to find that a slight hacking cough can be produced by irritating the anterior end of the inferior turbinated body.

3. The cough reaction may occur without erection of the inferior turbinated bodies, and may be intermittent in character.

4. Reflex nasal cough and the act of sneezing are very closely associated, and probably represent different forms or degrees of the same irritation.

The practical outcome of these considerations is, that in cases of spasmodic cough not otherwise to be accounted for, we should do well to examine carefully the nasal cavities in regard to the reflex irritability of their lining membrane.

SPARTEINE AT HOME.—DR. THOMAS H. BUCKLER writes as follows to the *Boston Medical and Surgical Journal* of June 30, 1886:

"The expensive sparteine lately recommended by Germain Sée for cardiac weakness, is prepared from Scotch broom—spartium scoparium—the *Planta Genista* or emblem of the Plantaganets, which grows in many parts of the thirteen original States, on sterile soil. It was brought over here by the Scotch and English to prevent the washing of gravelly roads and gutters. It should be cut and gathered at this season, and dried like hay. Its active principle is extremely soluble in water, and two ounces of ground or contused stems to a quart of boiling water, a wineglassful for a dose, every eight hours, are equivalent to a grain and a half of the prepared gum used by Dr. Sée. This remedy is useful not only in failure of the cardiac ganglia, but as a tonic to the organic and vasomotor nerves in whatever part

of the body congestions occur from loss of power in them. I have used this agent in the form of infusion for half a century, and with marked advantages in many cases."

Sudden Death from Corpulency.— Professor Kisch, of Prague and Marienbad, has recently collected statistics, and written a contribution in the *Berliner klinische Wochenschrift*, on the frequency of sudden death amongst extremely stout persons. In nineteen cases of this occurrence, acute congestion of the lungs was discovered in twelve cases, cerebral hemorrhage in six, and rupture of the heart in one. The pulmonary congestion arises, as Dr. Welch has already shown, from paralysis of the muscular walls of the left ventricle, while the right side of the heart continues to act with almost normal vigor. The apoplectic symptoms were traced, in most of the cases, to arterial sclerosis, a very frequent concomitant of extreme corpulency. Rupture of the heart is due to the overworking of the walls of the left ventricle, which, being involved in fatty infiltration and degeneration, can no longer increase in size, in proportion to the extra work which it has to perform. The failure of heart-power appears always to be the immediate cause of death, which generally follows immediately after violent exertion, or an excess in drink or diet. Stout subjects over fifty years of age are very liable to fatal syncope, which, however, is frequent amongst the corpulent at earlier periods of their lives.—*British Medical Journal*, May 15, 1886.

Aneurism of the Subclavian Artery Cured by Galvanopuncture.—Dr. Saboia has presented to the Imperial Academy of Medicine of Brazil, the history of a case of aneurism of the right subclavian artery in a man aged thirty, cured by galvanopuncture. The tumor was of the size of a small hen's egg, bounded on the inner side by the sterno-mastoid, below by the clavicle, and on the outside by the trapezius. There were no difference between the pulsations of the two carotids, but the radial pulse of the left side was strong, full, and vibrating, while on the right side it was small, filiform, and scarcely perceptible. Two metallic needles were introduced into the tumor, and connected with the positive pole of a Gaiffe's pile of fourteen elements, the negative pole being applied to the trunk at a distance from the aneurism. The sitting lasted thirty-five minutes, at the end of which the tumor had become tense and had ceased to pulsate.—*London Medical Record*, May 15, 1886.

Inoculation for Anthrax in India.—Recent experiments on the inoculation of stock for anthrax, in Madras, have attracted the attention of the Punjab Government, which is considering a circular on the subject. The Inspector of Cattle Diseases for Madras submits a lengthy report, which deals more with Dr. Klein's observations on Pasteur's anthrax vaccine than the work in hand. This much, however, can be gathered from Mr. Mills's statement. One hundred and nine government animals, and nineteen head of cattle belonging to ryots have been inoculated with vaccine from Paris during the past two years; and the result of these inoculations has been perfectly satisfactory. During the preliminary experiments to test the strength of the vaccine after its voyage out, everything went well as long as the doses laid down by Pasteur were adhered to. An unlucky guinea-pig, however—guinea-pigs and rabbits supply the rank and file of the noble army of martyrs to science—was over-inoculated, and died with all symptoms of well-developed anthrax; proving by its death that even the attenuated vaccine used in the first inoculations is not to be trifled with. Mr. Mills holds that, in view of the frequency and destructiveness of anthrax outbreaks in India, and the hopelessness of dealing with the disease when it has established itself anywhere, protective inoculation of stock should, if at all possible, be insisted upon. That is to say, a staff of veterinary assistants should do for cattle what the vaccinator in the district does for man. Setting aside the difficulty—no light one, as the report will show—of keeping up a constant supply of trustworthy vaccine in India, we are brought face to face with the reluctance of the ryots to accept any new thing; and the blind suspicion with which they would naturally regard any man syringing an unknown horror under the skins of their kine. Mr. Mills has had the results of Pasteur's labors translated and distributed to cattle owners; but the result is not inspiriting so far.—*The Indian Medical Gazette*, May, 1886.

Effect of Mental Overwork upon the Teeth.—Among the hard-worked pupils of the Paris public schools, the teeth become deteriorated in a few weeks after entry. The second dentition is often premature. These observations confirm the statements of Dr. J. L. Williams, who has given great attention to this subject. He has shown that any mental strain shows itself upon the teeth in a short time, both in increased decay, as well as in increased sensibility of the dentine. Dr. D. M. Parker has reported that these same changes are always apparent in men who are training for athletic trials. As there is not the slightest doubt of the accuracy of these observations, they show that these are matters which demand serious consideration from educators.—*Boston Medical and Surgical Journal*, June 3, 1886.

Toxic Effects of Corrosive Sublimate used as an Antiseptic.—This substance has come into very general use during the last few years, in the form of a solution, as an antiseptic. There can be no doubt that it possesses very considerable antiseptic powers; but, unfortunately, it is also a violent poison, and abundance of cases are now on record which show that its use is often attended with very great risk of toxic effects resulting from its absorption. In a paper recently contributed by Dr. Lucien Butte to the *Nouvelles Archives d'Obstétrique et de Gynécologie*, a long series of such cases are adduced, in many of which a fatal result followed persistent vaginal injections of the solution of Van Swieten (1 in 1000). The symptoms of poisoning were the more difficult to detect from the fact that, occurring during the puerperal period, they were masked, to some extent, by those incidental to this state. They consist principally of hypogastric pain and tenderness, violent abdominal pain of a colicky character, accompanied by frequent mucous stools, often stained with blood. The urine is generally diminished in quantity, and contains epithelial cells, casts, and more or less albumen. Salivation is most frequently

absent, but the mouth and throat are red and dry, and there is marked thirst. Dr. Butte is inclined to consider that absorption occurs most frequently in cases where lacerations of the perineum, or of the cervix uteri, have taken place, or where large ulcerating surfaces are present. The toxic effects are naturally more marked in debilitated and cachectic patients. The post-mortem appearances are indicative of enteritis, with sloughing of the mucous membrane of the large intestine, while the kidneys are enlarged and anæmic. Deposits of crystals of oxalate of lime are common in the uriniferous tubules, due, it is suggested, to the decalcification of the bones, which is said to result from the presence of the bichloride in the system. As Dr. Butte quotes no fewer than twenty cases, in which the fatal result was attributed to absorption of the mercury, it is evident that, in obstetric practice at any rate, the use of even extremely dilute solutions requires very great caution.—*British Medical Journal*, June 19, 1886.

Circular Cauterization in Opacity of the Cornea.—M. Louis Vacher, of Orleans, finds that in cases of corneal sclerosis or episcleritis better results can be obtained by circular cauterization lightly performed with a loop of wire heated by the galvanic current, than by the more usual method of passing a knife round the edge of the cornea. In one case, after eighteen months of this treatment, a patient who had been unable to see from corneal opacity for fourteen years, recovered the power of vision. In another, a cornea which had been absolutely covered with leucoma for ten years, had in two years become sufficiently transparent for the performance of iridectomy. M. Prouff confirmed M. Vacher's statement, stating that he himself had three times operated in this manner with the most complete success.—*Lancet*, July 3, 1886.

Successful Gastrostomy.—A case of gastrostomy under the care of William Square, F.R.C.S., is thus recorded in *The British Medical Journal* of July 3, 1886. J. W., aged sixty-two, a monthly nurse, was admitted on April 10, 1885. For some months she had had progressive difficulty in swallowing. About a week before admission she came to an absolute stop. Her history was good. Some blood in the vomit, and increasing tenderness, prevented the passage of any tube. Without operative interference, it was evident that she must die very soon.

On May 1, 1885, the first part of the operation of gastrostomy was performed after the usual custom. The stomach was easily found, and silver sutures were used. Nutrient enemata consisting of beef-tea and brandy, with some tincture of opium, were given every four hours.

On May 3d the stomach was opened with a Gräfe's cataract-knife. A soft India-rubber tube was introduced, being retained in place by a suture passed through it; one ounce of peptonized milk was given every two hours by the tube; in addition, one enema was given every five hours.

On May 9th peptonized strong beef-tea (two ounces) was given every three hours by the tube. The temperature was always normal, and there were no symptoms after operation but slight retching for two days. She was discharged on May 23, 1885.

On April 6, 1886, she looked almost as well as ever. She had travelled to Brighton and back, and, by the courtesy of the guard, fed herself *en route* in a separate compartment. She always laid down to feed. There had been an interval of one month during which she could swallow as well as ever, even hard meat and crusts. During all this month, however, she vomited mucus and blood until the capability of swallowing ceased.

She was in the habit of making her day's food each morning—a large basinful of beef-tea, bread, and milk. She injected as much as she wanted when hungry. Her meal-times corresponded with those of the family. Her mouth watered before. The only thing that she could taste when injected was whiskey. It had the usual alcoholic effects. She appeared very well, and it seemed that the diagnosis of carcinoma might be wrong.

On April 14, 1886, she was taken suddenly ill with vomiting, and a condition of semi-collapse. A large amount of green, highly offensive, pus was discharged by the side of the tube. She slightly recovered, but, up to the time of her death, took in but little, and was constantly sick. The green pus was always exuding, more or less, by the side of the tube. She became gradually worse, and sank on April 25, 1886.

At the necropsy the whole of the lower part of the œsophagus was one enormous ulcer; but there was no thickening or suspicion of cancer. The whole mucous membrane was simply destroyed. It was very offensive. The mucous membrane of the stomach was not healthy, but had nothing very remarkable about it. The orifice of the hole was very peculiar. I had expected to see it valvular, or dilated into a funnel; but it was no larger inside than out, being perfectly circular, and about the size of a No. 16 catheter. There was a little left pleurisy, but nothing else to record. I think we may say that the poor woman had one year of happy life, without ache or pain; and hence I am justified in calling this a case of "successful gastrostomy."

The Uses of Eserine Sulphate in Diseases of the Eye.—In a paper read before the Philadelphia County Medical Society, on June 16, 1886, Dr. H. F. Hansell presented the following conclusions:

From the reports of others, and from my own experience, I feel justified in concluding that eserine is indicated: 1. In acute affections of the cornea, involving the deeper layers. 2. In threatened perforation. 3. In diseases of the cornea where atropia fails to cure, and where the danger from posterior synechia and subsequent iridectomy is less than the present danger to the cornea. 4. In prolapse of the iris and beginning staphyloma. 5. In some cases of dislocated lens. 6. In paralysis of the ciliary and iris branches of the third nerve. 7. In glaucoma.

De Wecker sums up his opinion of eserine in these words: "In the use of eserine a step in advance has been made in ocular therapeutics. I do not exaggerate when I say that, thanks to our being able to substitute it for atropia, we are able to save eyes which formerly would have recovered, if at all, with more or less considerable staphyloma—a condition which would have left scarcely any hope of a restoration of vision. Furthermore, the powerful aid rendered by eserine should encourage any careful practitioner not to resort too readily to surgical interference in abscess of the cornea."—*College and Clinical Record*, July, 1886.

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PHYSICAL TRAINING IN AMERICAN COLLEGES.

IT is a startling fact announced by Dr. Sargent, of Harvard College—than whom no one has better means of knowing the truth—that "half the young men who come to college are physically in arrears." If that be so when they first go to college, and no provision be made for them to gain in bodily vigor while in college, what must be the result? What is the result? We see it all around us. Scholarly men in broken bodies, a large part of their mental capacity undeveloped for want of a better physical basis; snarling dyspeptics ever complaining of their stomachs, like Carlyle with his castor-oil,—"that oil of sorrow;" early graves quenching many a large and brilliant future that "might have been."

But a new era has dawned within the last twenty-five years. Mr. Higginson, writing of gymnastics in 1861, well said that the educational systems then in vogue always contemplated man as a sedentary animal, and that it was something to have outgrown the period when active sports were prohibited. In his early days there was but one boat in Cambridge, and the faculty suppressed that under a college law prohibiting a student from keeping any "domestic animal." In these twenty-five years there have been built thirty-three distinct gymnasiums in educational institutions, the total cost of which has been over $600,000. Amherst College led the way, not only in first providing a really good gymnasium in 1860, but in grasping the real idea of what such a department meant; and Harvard, following in 1879 with her magnificent Hemenway gymnasium, has still further developed the idea. In fact, these fine gymnasiums only gave the chance for Dr. Hitchcock and Dr. Sargent, two men of force and large ideas, to impress themselves on the community.

Most people—even educated men, and doctors among them—unless familiar with the "Sargent System," have an idea that a gymnasium is a place which anyone may go to perform feats of muscular strength, and so to become an acrobat or an athlete, and if he cannot do this there is no use of his going there. That is the fundamental idea of "College Athletics," as seen in stated contests by athletic associations, in rowing, baseball, and football matches.

But "Physical Training" in American colleges, in the proper sense—in the sense of Hitchcock and Sargent—is a very different thing. In college athletics only the athlete can excel, and in many games the strength and science are such that only the few who are strong and skilled can take any part whatever. But the "physical training" of to-day contemplates the whole body of the students, that every one shall get his share of good out of it. The weakly are more cared for than the strong. Every man is measured and gauged in all parts of his body, and those who are deficient are "prescribed for" intelligently, as an oculist does for myopia or a physician for a pneumonia. It is directed not only to muscular development, but to the state of the skin, the digestive organs, the heart, the lungs. It looks less after how many pounds one can lift than after his diet and drink, his hygienic surroundings, hours of study, general bodily vigor, habits and tastes, and adds to these the needed exercises. "Developing apparatus" plays a large part in the scheme. The weak parts are sought out and built up by them so that a symmetrical whole shall result in which no overdevelopment of one part shall take place, the body shall not be weak while the brain is strong, the legs shall not be unduly strong, and the arms or back weak. And all of this is contemplated as a part of the college curriculum, in which the Professor of Physical Culture shall be a physician and a member of the faculty, and the physical development is as much a college duty as mathematics or Latin, or any other study—truly a new idea in a college course!

Of course, many men will go further and develop more or less into athletes, but the object of college gymnasiums and college physical training, it cannot be too strongly stated, is not this, but it is to develop the physical health—and, as a consequence, the mental vigor—of the whole body of the student, and especially of the weaker ones who need it most.

We have been led to these remarks by reading Circular No. 5, of 1885, of the Bureau of Education on "Physical Training in American Colleges," by DR. E. M. HARTWELL, of Johns Hopkins University. This elaborate paper is alike creditable to the author, the University in which he is the able Instructor in Physical Culture, and to the wise management of the

Bureau of Education. In it will be found views and ground-plans of most of the good college gymnasiums, with lists of their apparatus, where this can be had, the architects of the buildings, the various physical examinations to be made, and, in a word, all the information one could desire on the subject. Dr. Hartwell has dealt with the subject with his usual thoroughness, and has made all colleges his debtor for the information, and especially for the intelligent way in which he describes and enforces the new education in its care of our bodies. Amherst and Hitchcock founded the new system, Harvard and Sargent have developed it, and the Bureau of Education and Hartwell will popularize it.

MASTOID OSTEITIS.

THE occurrence of suppuration within the mastoid cells is usually associated with disease of the middle ear, and in a certain number of cases it is limited to the sinuses. In others it begins in them, and afterward attacks the substance of the bone itself, producing a secondary osteitis. In a third class of cases it is primarily a bone disease, and, perhaps, this occurs oftener than is generally supposed. In such cases there may be present any of the ordinary forms of inflammation of bone, or of its periosteum, or of both. And the fact that the inflammation may occupy a variety of situations is of the utmost consequence. It may be in that part of the bone which is most accessible, and which is usually approached with the expectation of finding pus when the symptoms point to its formation, or the inflammation may be confined to the parts of the bone which form the inner aspect of the mastoid process, and which are difficult of access. This fact may account for the fruitless incisions which have at times been made by excellent surgeons, and for an unfortunate prolongation of the sufferings of a patient, or even a fatal issue of a case which might have terminated happily if the process of mastoid osteitis had been better understood.

The nature and treatment of "some of the less common forms of mastoid disease" have been studied recently by J. ORNE GREEN, who, in a paper bearing this title, in the *Boston Medical and Surgical Journal*, April 15, 1886, reports the histories of two cases in which it was necessary to extend the customary incision over the mastoid process behind the ear, to a point below its tip, and to penetrate below the sterno-mastoid muscle in order to give exit to pus. In addition to the interest which attaches to the method adopted in these cases, they have a special interest as bearing upon the points to which we have called attention above. It is usual to speak of suppurative inflammation of the mastoid bone as an extension of a process of suppuration in the middle ear. But, as we have already said, it may undoubtedly be a primary affection of the bone itself. Analogy, the symptoms of many cases, and the history, which often discloses no recent attack of osteitis, and not unfrequently indicates the occurrence of an acute infective disease, all point to the plausibility of referring these inflammations to the bone itself, or to its periosteum. In one of Green's cases the patient had an abscess of one of the ribs when he came into the hospital, and subsequently developed an inflammation of the tympanum and mastoid process. Here we have a history which corresponds to that of many cases of infective osteomyelitis, and we think it worth while to call attention to this view of such cases, because it has an important practical bearing upon the treatment of certain forms of inflammation of the mastoid process which are probably not very rare.

A PLEA FOR A CHEST HOSPITAL.

ANY one who has watched the condition of the victims of pulmonary consumption among the poor, must feel that their lot is in many respects more pitiable than that of any other class of patients—the insane not excepted. Hopeless as their case very often is, it becomes doubly so on account of the meagre medical benefits which can be rendered them. General hospitals seldom receive them, and to the poorhouse they generally refuse to go, and if they find no charitable friends they end their lives in a miserable hovel, or perhaps in the garret of a tenement house.

General hospitals have as much justification in refusing to admit them as the unfortunates have in declining to enter the poorhouse, for neither is adapted to their proper care and treatment. Lung affections are a special class of diseases, and they require as much special treatment as diseases of the eye or of the skin, or diseases of any other class. To the people of this country the idea of special hospitals for chest diseases is a comparatively new one. But it is not so in Europe, where many of the most important cities contain large institutions exclusively devoted to their treatment.

No other class of diseases has received more scientific attention from physicians, particularly during the last decade, than those of the respiratory organs, and it must be sadly confessed that the gain has been entirely incommensurate with the amount of work expended. Cod-liver oil, the hypophosphites, malt extracts, koumiss, forced feeding, compressed and rarefied air, inhalation of oxygen, and of nitrogen, antisepsis, cold and hot baths, cold douches, external applications, and a host of other remedies and expedients have been launched before the patient, yet the disease continues in its fitful and triumphal course. The recent discovery of the bacillus tuberculosis inspired the hope that this microörganism maintained a causative relation to the disease, and that

the true and rational treatment of consumption consisted in efforts to extirpate this parasite. This plan has, also, been tested from every conceivable approach, and thus far has yielded no decided beneficial results.

There can be no question that very many of the methods which have been advocated and recommended are capable of yielding excellent results, but the most salient reason for their failure to accomplish what they should lies in the fact that we have no buildings suitable to combine these methods for the greatest possible good to the patient—a building in which he is under the constant and entire control of either nurse or assistant, and in which he is enabled to pursue a systematic course in regard to everything pertaining to his welfare. Such a building should be erected in a healthful locality, possess the best heating and ventilating apparatus, good drainage, a pure water supply, ample conveniences for outside and indoor exercise, glass pavilions for exposure to sunlight during winter, hot and cold baths, douches, appliances for the inhalation of compressed and rarefied air, etc. In such an institution the patient would be under immediate observation, and could be directed what to do in relation to eating, drinking, sleeping, exercising, amusements, and the application and administration of remedies for the whole twenty-four hours of every day.

Serious objections are very often presented against a collection of many consumptives in one building or locality, inasmuch as it is urged that it increases the danger of infection and contagion. There is good ground for believing, however, that the risk from this source is more imaginary than real, a view which is strongly supported by the statistics of the Brompton Hospital for Consumption in London, and similar hospitals elsewhere. That phthisis is infectious or communicable from man to man, few will deny, but that it is so contagious that those affected with it require constant isolation is a statement not warranted by facts, and is too bold and too cruel an assumption to merit serious consideration. It is urged, moreover, that those who are in a more or less hopeless state exercise a depressing and discouraging influence on others who are in the incipiency of the disease. The testimony, however, of those who have spent many years in institutions of this kind shows that this timidity disappears in a very few days after admission, and that this influence is felt most by those who are the most desperately ill. A commingling of these patients, on the contrary, it is found creates a sympathy for each other's sufferings, and force of example, which their association engenders, is most useful in stimulating them to do things in the way of treatment which they could not otherwise be induced to undertake.

Unchecked and undaunted as consumption presents itself to-day, it is evident that home treatment, as compared with hospital treatment, is a failure, and that more decided measures must be instituted to cope successfully with this disease. Recent statistics show that the highest percentage of favorable results in chest diseases is derived from special hospital treatment, singly and alone. We trust that some of our wealthy philanthropists may have their benefactions directed to a channel in which their liberality may be applied in the relief of the suffering of this hitherto neglected but most deserving class of patients.

THE USE OF MEDICINES TO CAUSE ABORTION.

AT a recent meeting of the Gynecological Society at Hamburg, the proceedings of which are recorded in the *Centralblatt für Gynäkologie*, May 22d, LOMER reported the case of a woman who, when four months pregnant, took stramonium for the purpose of causing abortion; grave symptoms of poisoning followed, but she recovered, and the pregnancy was unaffected. She was advised by another woman to take the medicine for the purpose indicated, so that there seems to be a popular belief that stramonium is an abortifacient. Lomer, however, could find in none of the reported cases of stramonium poisoning an instance in which this agent caused miscarriage. He next turned his investigations to the question as to whether belladonna, belonging to the same family and having analogous effects, is an abortifacient; but he also failed to find any published case of belladonna poisoning in which miscarriage occurred. He was led to make this inquiry as to belladonna from the fact that Ploss states that the Greeks use this agent for the purpose of causing miscarriage. It is true that Ploss in that wonderful collection of information pertaining to woman in all ages and among all peoples, *Das Weib*, does state that the Greeks use belladonna for the purpose mentioned, but he does not state that it is administered internally; it, in combination with opium, is introduced into the vagina, and then other means are used in addition.

Lomer's conclusion was that no medicines are certain to act upon the impregnated uterus, with the result of terminating the pregnancy. In the discussion which followed, RATJEN thought that aloes had some effect, which was denied by Lomer. HÄCKERMANN had seen abortion follow the use of cognac; and, on the other hand, PIZA saw a pregnant woman who drank three-fourths of a litre of "Rosmarinschnaps," and she did not miscarry. PROCHOWNICK had seen active laxatives result in miscarriage, and HAPPE had seen an instance in which a pine-tree cone inserted in the vagina failed to cause miscarriage. RÆTHER stated that in the rural districts of West Prussia, savine, oil of amber and arsenic were

used as abortifacients; but such specific action was only observed when they produced a severe gastro-enteritis.

For our own part, we have met with two instances in which pregnant women took a preparation of May-apple in such large doses, for the purpose of causing miscarriage, that they were brought to a condition of great prostration by violent purging and vomiting, and in neither instance was the pregnancy interrupted. The general conclusion of the profession as to the action of reputed abortifacients is that such medicines do not exist. An emetic, or a drastic purgative may, in a given case, be followed by abortion, but the same means might be used in fifty other cases of pregnancy without such a result following.

SOCIETY PROCEEDINGS.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting June 21, 1886.

The President, C. A. Leale, M.D., in the Chair.

Dr. Edward G. Janeway read a paper on

THE DIAGNOSIS OF CERTAIN OF THE INFECTIOUS DISEASES.

For a number of years, while occupying the position of Health Commissioner, he said he was so placed that it was necessary to give a great deal of attention to this matter. He was also thus enabled to see those circumstances which are most liable to lead to mistakes, and at times to witness the sad effect of some of them.

The diagnosis of smallpox when it presents itself with all its ordinary characteristics is a matter of no special difficulty to one who has previously seen a few cases. But owing to the system of persuasive vaccination carried on in New York, and presumably to somewhat the same extent in other cities of the country, for the past nine or ten years, there had been comparatively little of the disease. Systematic vaccination in general, vaccination in the neighborhood where a case of smallpox had occurred, isolation or removal of the patient, disinfection of premises, and subsequent careful outlook for other cases in the neighborhood, had been successful to an extent appreciated by few. But Dr. Janeway thinks that the outlook for the future is not so assuring, as the work of vaccination has been crippled to a considerable extent during the past year, and a large contingent of infected persons exists, who may become victims to and spreaders of smallpox.

He has known the start of a considerable outbreak of the disease to be traced to a single erroneous opinion. Another very unfortuntate circumstance had happened which would tend to delay the prompt action desirable in dealing with the disease. The law had been invoked to inflict a penalty upon a physician who had reported a case of suspected smallpox to the Board of Health, and though an appeal had been taken which would probably be successful, yet the effect was unfortunate. It seemed to him that the case of the physician dealing with disease, and particularly with one which is dangerous to the public health, ought to be protected by law.

One of the greatest safeguards against an error of diagnosis as regards smallpox, consists in having such a classification of the disease fixed in the mind as should serve to take account of the various methods of its manifestation. In a number of the text-books important facts bearing upon the method of development of certain forms of smallpox are omitted. A satisfactory classification he had found as follows:

Purpura variolosa.	
Variola verâ . . .	Confluent. Semiconfluent. Discrete. Corymbosa. Hemorrhagic.
Varioloid	Variola varicelloides.

The distinction between purpura variolosa and the ordinary hemorrhagic type, where the blood is extravasated into the vesicles, should be kept in mind, and it can be best accomplished by making such a classification as the one referred to. In his experience, the failure to recognize, or even to have any knowledge of the existence of this form of the disease, has led to very serious consequences. The danger consists in mistakes between this form of the disease and the malignant type of some of the other infectious diseases, particularly measles, and, much more rarely, typhus fever, ulcerative endocarditis, and purpura hemorrhagica.

A careful cross-examination of the patient and his friends should be made, and, at the same time, the possibility taken into consideration that a visit to a strange place, the getting of new clothing, etc., might, in the absence of any other clew, furnish one. In these days of rapid travel, with emigration to the West, in that section of the country, as well as here, the recent arrival of strangers in the neighborhood must be thought of. Should it be learned that a possible exposure had happened, and to a case of disease of unknown nature, it should be a part of our duty to ascertain by inspection of such sick person, or by inquiry of the physician in attendance, the nature of the illness.

By way of illustration, Dr. Janeway related the following case: Some years ago he was called in consultation to another city to decide as to the nature of a strange variety of fever. One patient had died of it, and another was seriously ill at the time. When seen, the latter was sitting in bed, with very feeble pulse, though with only slight febrile movement, and showing evidences of dyspnœa, due to changes in the blood. He had a wet cloth on the forehead which concealed a number of purpuric spots in the skin of that part; while on the chest, abdomen, and legs these purpuric spots also existed. In one place there was a small vesicle (which was, however, of no determinate character), and at no point were there any papules or umbilicated vesicles. His mind was perfectly clear, and this was the sixth day of his illness. The hemorrhages had only appeared in the skin of the forehead on the morning of that day; but the eruption on the rest of the body had already existed for more than a day. Dr. Janeway suggested that the disease was in all probability purpura variolosa; in which opinion he received

confirmation, *first*, by hearing that this patient had attended the one who died, and had held her in his arms, the fatal issue having taken place about twelve days before the beginning of his own sickness; and, *second*, by asking about the others who had been exposed during the sickness and at the funeral of the first patient. He learned that a number of these individuals were down with fever and that one had an eruption. The latter proved to be discrete smallpox. The two cases with hemorrhagic extravasation were, then, undoubtedly variola, but of a form which none of the attending physicians had previously encountered. Quite an outbreak of variola occurred in that city.

This case illustrated better than any words these three points to be considered in establishing a diagnosis:

1. It is important to know the nature of the disease from which a malignant case, not itself possessing positive features, has developed.

2. Should the patient have died, this may be done by an investigation of others exposed to the originating case; these having perhaps a milder and more characteristic type of the malady.

3. The result of the exposure to the malignant case may in some instances be a proof of the nature of the disease.

In other words, we must take into consideration what gave rise to the disease in question, and what has been produced by it. Even in a large city, and in the case of homeless tramps, a rigid inquiry and cross-examination would do much toward throwing light on these cases. What he wished to emphasize was, that we must not be content to consider simply the eruption and patient's condition; but must use every means in our power to establish a correct opinion as to the nature of the disease producing this state, which is denominated purpuric or malignant. It is a great mistake to suppose that hemorrhages from mucous surfaces, a previous diffused scarlatinal-like rash, or maculo-papules becoming flattened purpuric spots, are necessary accompaniments of this type of hemorrhagic variola. Variations from this form which he had described were met with, up to that in which characteristic spots of smallpox eruption occurred.

Dr. Janeway here introduced another case to illustrate the necessity at times of making an autopsy to decide the nature of the doubtful disease. It was one in which an atypical case of smallpox was mistaken by the attending physician for cererbo-spinal meningitis; and two weeks after the death of the patient a gentleman who had been with her during her illness and had refused vaccination subsequently because he felt confident that the disease was not variola, sickened with, and died of, confluent smallpox.

The mistake in differentiating between scarlatina and smallpox occurs in those cases of variola in which a marked red efflorescence first occurs, and in which shortly darker spots and papules, followed by vesicles, appear. In some cases petechiæ occur in places and hemorrhages follow; and not seldom, in severe cases, he has seen the vesicles first on the inner sides of the thighs, and in the axillary space, the face being free. As the throat may be sore at this time, a mistake may occur and the order of events not kept in mind, which is two or three days' sickness, and then the rash and sore throat and mouth, due to the eruption. A mistake which he had known to occur was to consider the vesicles in such a case as sudamina. One point is to be borne in mind, viz.: that an examination which leaves out an inspection of the abdomen and chest, and particularly of the inguinal and axillary regions, will be very apt to lead to a mistaken opinion in the case of a severe infectious disease.

Again, the mistaken diagnosis of measles occurs in a twofold manner. On the one hand, the first stages of smallpox eruption prior to the formation of the vesicle, lead one who looks hurriedly at a case, and does not consider the previous invasion symptoms, to speak of measles. The other mistake occurs to one who looks at a severe case having the skin red, and in it a number of dark maculo-papules, together with hemorrhages of larger extent, and having hemorrhages from other places, as the nose, etc. One who has seen the first stages may have considered it as already shown to be scarlet fever, whereas, a little later, the numerous papules will lead to the mistake of black measles.

The mistake between syphilitic eruptions and smallpox is generally to consider syphilis as variola rather than the reverse. Most of the mistakes are dependent upon want of close observation of the whole eruption and of a consideration of the history of the case. The multiformity of the rash, the condition of the glands, and the duration of the disease will determine, in a large number of cases, the correct diagnosis, to which the history will add confirmatory evidence. Two illustrative cases were given by Dr. Janeway. One additional point had been observed, viz., absence of the eruption on the hands and feet and in the mouth in cases of a syphilitic pustular eruption otherwise pretty generally distributed over the body. In his experience syphilis causes more mistakes in diagnosis than any other disease or eruption, excepting only measles.

Mistakes between variola and varicella are not infrequently made. The distinction of typical cases is sufficiently easy, though he thought students are not infrequently puzzled by finding opposing statements regarding the appearance of the varicellous eruption, not only in different text-books, but also, at times, in different parts of the same work. The danger in mistaking varicella for varioloid is in paying too close attention to the eruption, for sometimes a slight induration is met with at the base of some of the spots of varicella, due to irritation. A careful scrutiny will generally show on the back and buttocks, and behind the ears, characteristic spots, whilst in other places the eruptions may be more or less altered. In cases of doubt between variola and varicella, attention should be paid to the cause of the attacks if known, and to the time of the development of the eruption after the commencement of sickness. Dr. Janeway has known of several cases of variola being contracted from cases of supposed varicella, cases which had been pronounced varicella by careful and trained examiners.

He had met several cases of varicellous-like eruption, so that, with Gregory, he believed in making a subdivision of varioloid which should include this under the head of variola varicelloides. He was led to this opinion by observing several cases of vesicular eruption closely resembling varicella in persons protected by vaccination, who were in houses where a patient was under

treatment for variola. Another chance for error exists in the fact of the patient coming under observation at that time in the history of a mild variola when the vesicle is full.

At times different forms of skin disease are mistaken for variola; those which are most liable to lead to such a result being herpes, erythema, urticaria, and lichen.

Typhus fever, when well marked, and presenting the characteristic eruption, occasions little trouble in making a diagnosis. The earliest cases of a visitation are, however, not always so well developed, and, in consequence, the disease gains headway, usually in localities most calculated to promote a rapid spread of the disease. In children particularly, there may be great trouble in deciding between typhoid and typhus. Some years ago while typhus was prevailing, an outbreak of fever occurred in an orphan asylum where, out of a number sick, there was absolutely no characteristic eruption. The attendants said that only a few had looseness of the bowels, nose-bleed had not been marked, and the records of fever had been loosely kept; so that it necessitated several days of study before an opinion could be given, with some degree of certainty, that the disease was typhoid fever. This was confirmed by seven autopsies.

If we are able to study a number of cases, we may find the average duration a marked help in diagnosis, especially in adults. A fever, the greater number of cases of which terminate, many of them with comparative suddenness, between the eleventh and fourteenth days, should always raise the suspicion of typhus. An autopsy should invariably be made as a sanitary necessity (should the opportunity occur) to decide the nature of a doubtful outbreak of fever. The lesions of typhoid are characteristic, while those of typhus are in some respects negative; but, in practice, if one of a number of cases of fever which has lasted longer than a week should present on autopsy only an enlarged spleen, with minute hemorrhages on the serous membranes, and parenchymatous degeneration of the liver and kidneys, we would feel justified in considering it due to typhus fever in this climate. Where isolated cases are concerned, an examination of the intestinal mucous membrane and of the muscles should be made, lest the trichinous disease may have passed in one instance as a fever.

Dr. Janeway said he had been much struck by the value of an examination as to the nature of the disease occurring in other inmates of the house or among the friends of a fever patient, as an early help in deciding upon the true cause of a case of fever. This is particularly true of hospital patients, who are often, as a result of the disease, assisted perhaps by congenital deficiency, too stupid to give a good account of themselves. The neglect of resorting to this means of information and diagnosis had been, in several cases in his experience, very unfortunate. As in the case of smallpox, he said he would urge upon the profession the wisdom of oftener resorting to this plan in forming an opinion. The Board of Health would do it on request. He was willing to admit that typhoid fever might occur with typhus, but in practice, two or more persons who had been similarly exposed should, if becoming sick with a febrile complaint nothwithstanding certain differences in the manifestations, be considered as having the same disease. He is particular on this point because, owing to some differences in the eruption and certain minor details, he has at times been told that of two members of a family sick, one had typhus and the other typhoid fever.

It has sometimes been taught that typhoid fever is not contagious, and hence that if several members of a family sicken one after the other, then if the symptoms are not decisive, this contagious nature will point toward typhus. Taken as a broad generalization of city practice, it might be held true, but unfortunately enough exceptions are met with, even in the city, to destroy its full value, while in the country we have the indirect contagion if not the direct, causing several members of a family successively to fall victims to typhoid. He has known the use of antipyrin to cause the appearance of a profuse, somewhat measly rash, which led the medical attendant to suppose that what he had previously considered typhoid was typhus fever. As regards diarrhœa, all practitioners know that not a few cases of typhoid pass through without it, and again, that it may occur in typhus, though the passages do not possess the peculiar color of those of typhoid.

Typhus fever is not alone likely to be considered as typhoid, but also to be mistaken for cerebral inflammation, and particularly for cerebro-spinal meningitis, in consequence of the occasional presence of a petechial rash in the latter. In doubtful cases optic neuritis, if present, would decide in favor of cerebro-spinal inflammation. But, notwithstanding the fact that he had had a considerable experience with cerebro-spinal fever, he had not as yet seen a single case in which the rash resembled that of typhus. In the few cases which he had seen with petechia, it had been more like that seen in some cases of malignant smallpox. Moreover, we very commonly meet herpes of the face and lips in cerebro-spinal disease, but so rarely in typhus and typhoid fever as practically to amount to an almost pathognomonic sign against these affections, if present in a doubtful case. It may occur in so many other affections, however, that its presence is of no diagnostic value, except as against the probability of either typhus or typhoid.

Fleabites occurring in typhoid fever have in some instances caused a diagnosis of typhus. So, again, has a profuse rash in which a number of *taches bleuâtres* of the French were present. He had endeavored, also, to ascertain how far it was probable that pediculi pubis were the cause of this eruption, and he intended to continue the investigation, though it was a matter in which he did not anticipate any great success.

Tuberculosis is a condition which causes not a few mistakes in the diagnosis of typhoid fever, and at times of typhus also. Meningitis is so rare a complication of typhus or typhoid fever that its existence should always raise the suspicion of another process, and more particularly of tuberculosis. If, under these circumstances, choked disk should be found on ophthalmoscopic examination, it would still further increase the probability of this affection. The next step in the diagnosis would be to ascertain if, in any point of the body, there exists a tubercular lesion accessible to proof or strong suspicion, or if from the previous history there is any probability of such a condition in the lungs. It should be borne in mind that the examination of the lungs in unconscious and particularly comatose condi-

tions is extremely unsatisfactory, so that very good examiners have supposed the lungs to be in health when making examinations in those states, while they were, in reality, the seat of far advanced phthisical processes.

If decided proof existed, as a result of a physical examination, that the lungs are the site of disease, which, from its position could be assumed to be tubercular, then it would, with the foregoing facts, be violence to evidence to call the disease typhus or typhoid unless absolute proof of their presence could be obtained, as by the eruption of typhus. Some supposed that the finding of bacilli of tubercle in the sputum would invariably decide the question between typhoid and tuberculosis, as, in cases seen moderately late in the disease without a reliable previous history, a bronchopneumonia of typhoid, and that accompanying certain cases of tuberculosis might be distinguishable by physical signs. Providing that the examination was made with care, and more particularly that every precaution was taken in collecting the sputum, to be certain that there was no contamination of the vessel or of the sputum after collection, then the presence of indubitable bacilli would be proof. But—and this was the point to which he particularly wished to direct attention—if it was supposed that any one could make the examination and decide, and if the ordinary manner of collecting sputum was employed, then there were chances for error.

Again, bacilli might not be found in the sputum from tuberculous patients, because of lack of care in selecting the proper portions for examination, and in some cases as a result of employing the short method for staining. While he had been able to make some very good diagnoses by the employment of these means, he had also met cases in which phthisis had been diagnosticated as the result of the finding of a few bacilli, yet the subsequent course of the disease or an autopsy disproved the diagnosis. There are certain things which a hasty observer might mistake for bacilli, as little crystals which appear red as the light is refracted in passing through them, not sufficiently decolorized bacteria of other kinds, etc. Dr. Janeway had, however, seen both typhoid and typhus coexistent with phthisis.

Pyæmia, and more particularly that dependent upon otitis media, and bacterial thrombosis of the lateral sinuses, caused mistakes in diagnosis, as against typhoid and typhus fever. The reason for this was, that, in the unconscious or delirious state in which patients thus affected are apt to come under observation in hospital practice, no mention was made of the old ear trouble, and no examination of the ear would be made. The irregularity of the fever, the not infrequent coexistence of meningitis or of cerebral abscess, with phenomena more or less strongly suggestive of these conditions, the history or the present observation of suppurative discharge from the ears, and that it had perhaps become foul or been arrested, tenderness or œdema over the mastoid process, and the observation of abscesses in the cellular tissue or of joint inflammation, should at once lead to a diagnosis of probable otitis media. The swelling of the little vein behind the ear and the œdema of the tissue on the mastoids might be absent in severe disease, and present where the subsequent course demonstrated that the process was not pyæmic.

In one instance, of a woman with some severe fever, which had been supposed to be typhoid, Dr. Janeway found as a useful adjuvant to diagnosis thrombosis of the internal jugular vein, giving a firm feel to the vessel. During the present year he had met with three illustrations of this malady, and in one the thrombosis of the lateral sinus was not of a completely obstructing nature, and, in consequence, the œdema behind the ear was absent. In a suspected case jaundice would point toward pyæmia or septicæmia, as distinguished from the fevers in which its occurrence is comparatively rare. Such jaundice was present in one of the three cases just referred to.

The President, after alluding to the injustice which had been done a well-known practitioner of the city in imposing a fine upon him for performing his duty in reporting to the sanitary authorities a suspected case of smallpox, said that within the past three months he had been called to see a child nine years of age in whose case four physicians had already failed to make a diagnosis. The symptoms were very obscure, but resembled cerebro-spinal meningitis more than anything else. There was slight opisthotonos, but no eruption of any kind. The child died within forty-eight hours, and no autopsy was permitted. Within a week a child residing not more than a hundred yards from the last was taken with similar symptoms. He supposed that it was a case of some suppressed eruption, and ordered the child to be placed in a hot pack. As there was marked exhaustion, alcoholic stimulus was also given freely. Within three days measles developed itself, and the patient passed through a violent attack of the disease.

Three years ago he made out the diagnosis of varioloid in the case of a young lady twenty-one years of age. As the attack was a mild one, and there was a possibility of doubt about the nature of the case, he requested that an expert from the Board of Health should be called in, and this gentleman confirmed the diagnosis. Some time later, however, another physician saw the case, and he expressed the opinion that the young lady had had *varicella;* which naturally caused a great deal of disturbance.

Dr. P. Brynberg Porter called attention to the striking resemblance of herpes zoster of the face, when at its height, to erysipelas, and the possibility of making a mistake in diagnosis, unless one had seen the case from the beginning or took special pains to ascertain the exact history of the attack. He related a case in point.

Dr. John Shrady remarked that it is often very difficult to make a positive diagnosis in cases of hemorrhagic smallpox occurring at the beginning of an outbreak of the disease, and recited cases to illustrate this. He also spoke of another class of cases still more obscure, in which the patient has a second attack of the disease.

Dr. Janeway presented the heart and kidney of a patient who had died of

ULCERATIVE ENDOCARDITIS.

He was a salesman, twenty-seven years of age, who had had rheumatism from boyhood, and disease of the heart from at least the age of sixteen. The attack in question came on one week before his death. He had a chill, accompanied and followed by headache and pain in the back and shoulder. On the first day, the

temperature was 103° in the morning, and 104° in the evening. On the next day it was 99° in the morning, and 101° in the evening. On the third day he was affected with muttering delirium, and had epistaxis; the morning temperature being 100°, and the evening, 104°. There was no diarrhœa or abdominal tympanites.

Fourth day: Temp., A.M., 102°; P. M., 103⅘°.

Fifth day: Temp., A.M., 102⅘°; P.M., 104⅘°.

Sixth day: Temp., A.M., 103°; P.M., 104⅗°.

During this time the temperature had been more or less modified by the administration of salicylate of sodium and antipyrin. On the seventh day, on which he died, the temperature was 103°.

In this case there was a strong suspicion of typhoid fever; but when the patient was first seen by Dr. Janeway, on the sixth day, he was much more stupid than a case of typhoid would have been at that stage of the disease. On the forehead, behind the ear, and on the back and abdomen were found a few petechial points. Under the circumstances, he made the diagnosis of ulcerative endocarditis. In addition to a heart murmur, which had previously existed for a long time, a new basic murmur was now detected. On the sixth day, after Dr. Janeway saw him, larger petechiæ or hemorrhagic extravasations developed on the soles of the feet and the palms of the hands.

The specimens presented abundantly confirmed the diagnosis. There had been but one kidney, and that was the seat of numerous hemorrhagic extravasations. On the aortic and mitral valves of the heart there were well-marked vegetations. This case, Dr. Janeway remarked, served to illustrate the possibility of mistaking ulcerative endocarditis for some of the more common febrile diseases.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, May 24, 1886.

THE PRESIDENT, JAMES T. WHITTAKER, M.D., IN THE CHAIR.

A CASE OF ECHINOCOCCUS OF THE LIVER.

DR. JAMES T. WHITTAKER, in reporting a case of this disease, prefaced his remarks with the statement that the rarity of echinococcus in this country makes valuable every clinical report of a case, if only for the purpose of keeping alive the suspicions of the practitioner. For since the days of aspiration the diagnosis of an accessible echinococcus has become extremely simple in the presence of suspicions as to its possible existence in a given case.

Mr. H. P., aged sixty, a tall German, originally of iron frame, began to suffer from dyspeptic symptoms about two years before he came under Dr. Whittaker's observation and visited numerous physicians vainly to secure relief. The first physical examination of his case was made six months before he came under observation, when a fulness was noticed in the region of the right hypochondrium and epigastrium. The symptoms were so plainly and exclusively gastric at this time as to lead to the vague opinion of "stomach trouble" and "dyspepsia."

Mr. P. was a man but little given to notice his own sensations. He occupied an important and responsible position as foreman in a large factory and was steadily busy throughout the day. In fact, he ceased work only on the day that he came to Dr. Whittaker, and then more on account of depression of spirits than from any pain or other cause of incapacity. He had, with increasing debility which he attributed to loss of appetite, become apathetic and indifferent to his work, which had always been hitherto his chief satisfaction. In fact, he had become quite indifferent to life, and consulted another physician only to silence the entreaties of his friends.

He had little or nothing to communicate upon the first examination, though the general emaciation, sluggishness of mien and response, and sallowness of hue bespoke better than words a chronic organic disease. On exposure of the abdomen the tumor mentioned was prominent at the first glance. It was clearly in the region of the liver, the surface of which protruded regularly in every direction. Both lobes were evidently affected, as the outlines reached well over to the left hypochondrium and down to the line of the umbilicus in its most depending part. The edges of the tumor could be grasped by the fingers flexed with pressure into the abdominal walls. There was also surface œdema. It was plain that the tumor was lobular. Two quite large masses, each the size of the double fist, could be readily distinguished, as well as numerous smaller growths. One of these smaller tumors, situated just below the ensiform cartilage, fluctuated distinctly, and a deep, doughy sensation was felt in the larger growths. The multilocular character of the tumor, with the history of its slow progressive growth, and the entire absence of pain or other local distress beyond that of weight and distention, led at once to the conviction that the case was an echinococcus of the liver. With this conviction, Dr. Whittaker introduced the needle of a small stout aspirator about twice the size of an ordinary hypodermatic syringe—in fact, the veterinary hypodermatic instrument—and upon withdrawing it felt disappointed at finding it seemingly empty. But upon pushing down the piston preparatory to returning the instrument to its case he discovered that the barrel of the syringe was full. The fluid, of water-like clarity, had flowed in so easily as to have followed the plunger close on its withdrawal in the process of filling the syringe,

Dr. Whittaker took this fluid, about half an ounce, to Dr. E. W. Walker, who tested it in his presence. The application of heat and nitric acid made no, or almost no precipitate, while the addition of a solution of nitrate of silver threw down a visible deposit of the chlorides. Two rather dubious specimens of hooklets were found on microscopic search. The diagnosis of echinococcus was thus established.

The patient was absolutely averse to an operation. He now passed out of Dr. Whittaker's hands. Two weeks later the patient was bedridden and complaining of pain in the right hypochondrium. This pain disappeared in a few days under rest and hot applications, when he expressed willingness to have the largest sac emptied by aspiration, though he peremptorily refused anything like a radical operation. Accordingly, with the assistance of Dr. Bigney, Dr. Whittaker removed with the Dieulafoy aspirator about a pint and a half of fluid of the same character as the first. It was at this time that he got an indistinct sense of hydatid tremor. With the needle in the sac he now injected a half pint of a strong solution of carbolic acid. This injection was

attended toward its close with such severe pain as to compel the withdrawal of the fluid entirely, and the administration, hypodermatically, of a dose of morphia. This operation was followed by a circumscribed peritonitis, from which the patient recovered entirely only after the lapse of two weeks.

It was evident that the sac punctured had filled up completely, and that the whole mass was enlarging. There now developed considerable œdema of the feet, the interference with digestion became most grave, and emaciation progressed rapidly, with corresponding loss of strength. It was plain that death must soon occur from exhaustion.

The patient finally consented to an operation, more in the hope, as he expressed it, of securing relief even with a fatal issue. The operation was performed by Dr. Conner, whom the speaker invited to report the operation.

Dr. P. S. Conner stated that at his first examination of the patient there could be no question that a cystic tumor of the liver was present. There were two large masses recognizable, one seemingly in the right lobe of the liver, the other in the left; the smaller tumor to the left appearing to rest upon the larger to the right. Whatever may be said as to the propriety of operative measures now, there could be no question then that after a part of the fluid had been removed by aspiration and the sac had refilled, an incision was imperative. He cut down upon the liver, making the incision parallel to the long axis of the liver, about two inches in length. The peritoneum was incised, the surface of the liver exposed, and after stitches had been inserted so as to bind the cyst-wall firmly to the abdominal wall, he made an incision into the cyst with the knife. Pushing in the knife, he expected to find the fluid very quickly, inasmuch as the insertion of the hypodermatic needle had so readily withdrawn fluid, but he had to cut down an inch and a half before he reached the fluid. For three-fourths of the time that the man lived after the performance of the operation his condition steadily improved from day to day; but for forty-eight hours before his death he became weaker and weaker, until he finally passed away.

The examination of the tumor, after removal, proved positively that no operation could have been of any benefit. At least twenty-five large cysts were found, and a great many more of smaller size. Fortunately, hydatid cysts are usually single, or there are at most two or three cysts lying closely together. Where the latter condition is found, surgical procedure promises better results than where there are several cysts, or a great many, as in the case under consideration.

GENESIS OF ECHINOCOCCUS.

Dr. R. W. Stewart, in opening the discussion of this branch of the subject, remarked that he would confine himself to the theory and explanation of the birth and production of the echinococcus.

Probably no class of diseases, no pathological new growth, no microörganism has ever given such apparently complete and perfect support to the theory of spontaneous generation as that formerly known as hydatid disease, and now known as echinococcus cyst, for here was a growth in a closed sac within a closed organ, completely shut off from the external air. It grew, and had no counterpart in the outside world. Ova were sought for but were never found; organs of generation were sought for when no such organs existed. There could be nothing else but spontaneous generation until Steensteup, in 1842, made his observations upon the cercariæ, and discovered that "some of the entozoa, by a non-sexual process, undergo that peculiar form of multiplication in which the immediate progeny of development from the ovum is dissimilar from the parent, but produces without the aid of sexual organs another progeny which either itself or by repetition of an analogous process returns to the parental form" (Allen Thompson). This process is called alternate generation, or metagenesis, and is beautifully demonstrated in the transformations from tænia echinococcus to echinococcus cyst, and from this again to tænia echinococcus. Spontaneous generation receives its death-blow from the very thing which formerly appeared to give it its most prominent support.

The echinococcus is the larval state of the tænia echinococcus, the family history of which may be traced out from the tæniada to the scoleida, radiata, invertebrata (Huxley).

The tænia echinococcus, one of the smallest of our animal parasites, measures about four millimetres in length, and consists of a head and three segments. The last segment contains both organs of generation, and is probably a self-fertilizer. It is larger than the other parts of the worm taken together, and after fructification contains probably five thousand eggs, each of which contains an embryo. The mature tænia does not interest us further in this connection apart from the fact that shortly after fecundation the last segment drops off from the worm and finds its way into drinking water or upon green or ripe vegetables, and is then taken into the stomach of man or other animals, while a new segment is developed in its place and goes through the same process. The separated segment may burst in the intestine of the dog and the freed ova be deposited with the feces in the manner mentioned. When an ovum reaches the human stomach its dense, tough, oftentimes calcareous husk or shell is dissolved off by the action of the gastric juice, and a fully armed embryo carrying six hooklets and about three times the size of a human blood-corpuscle, is set free. This embryo is simply a vesicle or bag with spikes arranged about one end. It bores its way through the stomach wall or may pass down into the intestine and bore through that, or make its way through the ductus choledochus or into the portal vessel, and may thus reach the general circulation and be carried to any organ. The process of growth or development through which it goes after reaching the liver will best answer our purposes of demonstration. The embryonic vesicle after reaching the liver substance increases in size, but does not begin to proliferate for from two to five months. This growth consists in the formation of one large cyst, with walls containing various concentric layers and an outside sheath which is formed from the liver substance. The innermost layer is granular in character and covered internally with ciliated epithelium. This layer becomes thickened in places and gradually forms hollow elevations—the brood-capsules—or it may throw up these elevations and produce out of them daughter cells which, in turn, are to all intents and purposes like the mother-cyst, and

which go through the same process of proliferation, as follows: From the surface of the capsule glove finger-like processes project into the brood-capsule. These are the scolices, the first formation of the head of the future embryo. From this description it will be seen that a scolex is simply a hollow in the brood-capsule, communicating with the general cavity of the cyst and projecting into the brood-capsule.

The scolex soon begins to show at its free end a double row of hooklets and four suctorial prominences to form the head of the embryo. After a time a constriction appears just behind the suckers, and this constriction becomes thinned out into the neck. So long as the scolex remains attached to the capsule-wall, and the constriction is not too great, it can turn itself inside-out and project then not into the brood-capsule, but into the general cavity of the mother cell. This is the course as found in the lower animals; usually, however, in man, the inner or granular layer develops into a number of daughter cells, which protrude into the general cavity of the mother cell—endogenous growth—producing thus the peculiar aggregation of grape-like bodies so characteristic of hydatids. The process of development in the daughter cells goes on just as was described for the mother cell.

The daughter cells vary in number from very few to several thousands, and each brood-capsule contains nine or more embryo.

We have now traced the echinococcus from the ovum to the scolex of the encysted parasite, and have found that the scolex is the embryo, and consists of head and neck. The question naturally arises, How do these embryos develop into the mature worms? If the cyst remain in the body the embryos remain alive as long as they are attached to the cyst wall, or rather to the wall of the brood-capsule. Very little if any further development takes place, except perhaps a slight transverse marking to show the boundaries of the future segments. If, however, the organ in which this cyst exists be eaten by an animal in the intestinal tract of which development can take place (and as yet the dog and wolf are the only ones in which this can occur), the head resists digestion in the stomach, passes into the duodenum, affixes itself to the mucous membrane and then develops into the mature echinococcus.

If the cyst remain in the liver or other organ of the host the embryos develop, as already described, in the brood-capsules and either die and become cast off into the cavity, or they, in turn, develop into daughter cells and produce embryos, and thus make the process an almost continuous one, and one of which the limits of growth are the limits of the organ and its surrounding tissues.

Dr. A. G. Drury said that the tænia echinococcus is the smallest of all the tapeworms, not exceeding a quarter-inch in length, and having four segments, including the head. The last segment exceeds in length all the rest of the worm. It is the only one having reproductive organs; and these include both the male and female organs. There is still some doubt as to the manner in which the female organs are impregnated. Leuckart thinks it is effected by the male organs of the same joint, others suppose that two joints come into contact and are mutually impregnated. It does not appear that the ova are ever discharged through the vagina. They are too large to pass in that way. They remain in situ until the joint is ruptured. This may happen within the intestine of the animal, or after its discharge from the bowels. This tapeworm is found only in the dog, wolf, and fox. It produces thousands of eggs. Within the egg an embryo is formed which is a globular body, provided at one part of its circumference with six delicate hooks, arranged in pairs. This is enclosed in a thick shell which, in some species of tapeworm consists of several layers. These eggs cannot get beyond the embryonic stage in the body of the dog. The eggs are passed with the feces, which become dry and crumble into dust, and the eggs adhering to the dust are blown into gardens and orchards and become attached to vegetables and fruits, much of which is eaten unwashed and uncooked. The echinococcus cysts are developed from these six-hooked embryos. They are found in the lungs, kidneys, bladder, bones, neck, and other parts of the human body, though much more rarely than in the liver. When a man or other animal swallows the ova the shell is dissolved by the digestive juices and the embryos escape. They then bore their way through the coats of the digestive canal, and getting into the bloodvessels are floated along with the current to the liver or other organ suitable to their development.

The reason for the greater frequency of hydatids in the liver probably is that the embryo in boring through the walls of the intestine or stomach generally gets into the rootlets of the portal vein, and is carried into the main trunk and arrested in one of the capillary branches within the liver. Here, again, it probably bores its way out of the vessel into the surrounding tissue where it is eventually arrested. Having reached its permanent home it begins a new stage of development. It loses its hooks, becomes larger, and from being solid becomes a vesicle containing a transparent fluid. From this time it presents the character of a more or less globular vesicle or bladder. Before its relation to the tænia echinococcus was known, it was called the bladder-worm. It gives rise to changes in the surrounding tissues. It becomes surrounded by a layer of granular matter which is an exudation from the tissues of the host; and soon after by a fibrous layer abundantly supplied with vessels. Henceforth the hydatid is always enclosed in this membrane, which is termed its capsule. This capsule grows with the growth of the contained hydatid, fitting closely to its exterior and giving it the support it needs. It is from the vessels of the capsule that the embryo is nourished. After a time the growing vesicle begins to show a projection from some part of its inner surface, and this gradually increases in size and becomes pear-shaped. Soon four suckers make their appearance in the interior of this body and sometimes a circle of minute hooks. After a time a kind of neck is developed. It then looks like the head of a tapeworm suspended within the bladder or vesicle. Up to this point the development of an echinococcus is the same as that of the cysticercus. The further steps are different. The cysticercus, in order to complete its development, would have to form only a single head in its interior. This head would grow as a kind of bud or protrusion from one part of the interior of the cysticercus, and would gradually become provided with its two rows of hooklets and suckers. In the echinococcus, instead of a single protrusion, a number of them form at differ-

ent times from the interior of the animal. Each of these buds does not form a head, but itself becomes a cystic body, which for a time is attached by a pedicle to the spot where it started, but soon becomes detached. This is called a daughter cyst. Each daughter cyst may develop one or more granddaughter cysts in its interior. In this way the echinococcus becomes filled with a number of smaller vesicles of various sizes which may amount to thousands. It will be observed that the difference between a cysticercus and an echinococcus is that, whereas the former gives rise to one head, and can ultimately form a single tapeworm only, the latter may develop thousands.

Sometimes, though exceedingly rare in the human subject, instead of budding internally to form daughter cysts, it forms external protrusions. In this way the liver may become riddled with hydatids not contained in any mother-cyst, but penetrating the liver in all directions.

(*To be continued.*)

CORRESPONDENCE.

THE MUNICH MEETING OF THE GERMAN GYNECOLOGICAL CONGRESS.

The session opened at Munich, on June 16, 1886, with a social gathering in the Hall of the Kunstgewerbe House, at which about fifty prominent gynecologists were present, and the regular business commenced on the morning of the next day at 10 o'clock, in the clinic room of the maternity. Sixty members were then present, and the chair was occupied by Prof. Winckel, Prof. Küstner acting as Secretary. Among those present were Prof. Kaltenbach, of Giessen, Prof. Müller, of Berne, Prof. Fehling, of Stuttgart, Prof. Schatz, of Rostock, Prof. Winckel, of Munich, Prof. Küstner, of Jena, Dr. Sänger, of Leipzig, Prof. Credé, of Leipzig, Prof. Scanzoni, of Würzburg, Prof. Olshausen, of Halle, Prof. Slavyansky, of St. Petersburg, Dr. Frommel, of Munich, Dr. Kehrer, of Heidelberg, Dr. Krukenberg, of Bonn, Dr. Skutsch, of Jena, Dr. Stumpf, of Munich, Dr. Veit, of Berlin, Dr. Hofmeier, of Berlin, Dr. Freund (the younger), of Strassburg, Dr. Elischer, of Buda-Pest, Dr. Donat, assistant to Prof. Credé, and many other faithful workers in the gynecological field. Prof. Paul F. Mundé, of New York, and the writer, were the only representatives not of the Continent of Europe.

The meetings throughout were most admirably conducted by the ready judgment and excellent tact of the chairman, Prof. Winckel. In looking over the assembled heads only two were gray, one belonging to the still wiry figure of Herr Geheimrath Credé, and the other to the portly one of old Prof. Scanzoni. Many of the others, whose names are already well known abroad, are young men.

Prof. Winckel, in opening the meeting, extended a cordial welcome to all the members, particularly those who had come from great distances; he alluded to the recent sad death of the King of Bavaria, and stated that had there been time to notify the members the meeting would have been postponed, both out of respect, and because the whole town was at present in mourning.

Prof. Müller, of Porro-Müller reputation, then delivered the first address. No essays were read, the members either using brief notes, or speaking entirely from memory, and their delivery was for the most part energetic and impressive. Prof. Müller spoke upon the "After-treatment of Grave Laparotomies." He referred to shock, embolism, and coprostasis, but considered one of the greatest of all dangers to be extensive adhesions of the intestines to areas of the anterior abdominal wall which had been extensively denuded. To avoid this he advised a forced injection of a sterilized salt solution into the peritoneal cavity so as to keep a water-pad on the raw surface until it should glaze over, when the water was to be let out again.

Prof. Schatz stated his belief that adhesions were much more common than believed, and considered the use of opium contraindicated.

Prof. Kaltenbach said that adhesions were, in times past, vastly more common, being due to imperfect toilet, and often to abrasions of the epithelium by the cleansing sponge. Since using the bichloride he has seen no adhesions.

Dr. Sänger said he believed adhesions were the rule, that they do no harm, and that injections will not prevent them.

Prof. Müller replied that he always used sublimate solutions and had adhesions in spite of them.

Dr. Bayer, of Strassburg, then delivered a finished address upon "Placenta Prævia," containing many new theories of his own elaboration which provoked some active opposition on the part of the members.

Dr. Frommel, of Munich, delivered an address upon the "Histology of the Fallopian Tube," which was well illustrated by plates and slides; he had devoted special attention to the epithelium, and to the development of the plica.

Prof. Fehling, of Stuttgart, brought before the members the results of a critical study of the "Relation between the Amount of Hæmoglobin in the Amnion and in the Mother's Blood," showing a constant relation.

Dr. Sänger next introduced to the attention of the Society a new field for pelvic exploration, the "Palpation of the Ureters, with Demonstrations." He showed that the examining finger in the vagina could feel one or both ureters in about eighty per cent. of all cases, and in a much larger percentage of pregnant women, and that in pyelonephritis such a demonstration often determined a one-sided thickening, and a ureteritis pointed distinctly to the affected side, as he had in several cases proved. Prof. Winckel furnished six pregnant women for a demonstration, which was made to the satisfaction of all present.

Prof. Kaltenbach exhibited some hypertrophied ovaries, and a uterus four and a half months pregnant, with a myoma as large as a cocoanut.

He also delivered an address upon the subject of "Prophylaxis of Ophthalmoblenorrhœa of the Newborn." The percentage of disease in neglected cases he stated to be enormous. To insure protection he combines two methods, both cleansing the vagina and washing the eyes of the child in a sublimate solution.

Prof. Olshausen considered the nitrate of silver solution by far the best. In two hundred cases so treated, he had had but one one slight catarrh, and that was innocuous.

Prof. Leopold, of Dresden, spoke of the technical difficulties in effectually cleansing either vagina or eyes.

Prof. Credé, speaking from his enormous experience, had had perfect results from the use of the nitrate of silver solution; in two years in the Leipzig Lying-in Hospital they had had but one case of ophthalmoblenorrhœa.

Dr. Stumpf, of Munich, delivered an excellent address, being a digest of a series of well-studied cases of puerperal convulsions.

Dr. Sänger's paper on the "Relation of Gonorrhœal Infection to Puerperal Diseases," was again a most valuable contribution, showing that latent gonorrhœa may produce no serious evidences of its presence until after childbirth, when an active peritonitis or pyosalpinx may quickly arise. He considers gonorrhœa a most frightfully common malady, and for diagnosis rests upon clinical features, the coccus being an utterly uncertain and unreliable point. In tracing back one suddenly arising puerperal peritonitis, he found that one of the children had had ophthalmia, and that the husband had had gonorrhœa.

Dr. Gräfe, of Halle, cited a case from his private practice.

Prof. Kaltenbach had traced a case through an intervening endometritis.

Dr. Sänger does not believe that endometritis is a necessary or usual preliminary.

Dr. Bumm insisted that the diagnosis of gonorrhœa could not with any certainty be established until the coccus had been found. He claimed that all types were mimicked by catarrhs, and insisted further upon the ease with which the microscopic examination could be made. The gonococcus is only found very superficially in membranes; the coccus found in glands and abscesses is the staphylococcus aureus.

Prof. Winckel made some remarks as to the negative nature of culture-work and experimental pathology in this direction.

The meeting then closed for the first day, with the announcement that the next meeting would be held in two years in Halle, with Prof. Olshausen in the chair, and the following members, now present, as officers, Profs. Gusserow, Schatz, Kaltenbach, Küstner, and Schwartz.

On Friday morning, June 18th, the meeting reopened with an address from Dr. Elischer, of Buda-Pest, on the "Use of Iodoform in Laparotomy." He considered this a dangerous agent, and one not to be used in the abdominal cavity. The members in reply disagreed with the speaker entirely.

Prof. Olshausen considered a dusting of iodoform a most valuable expedient in cases of tubercular peritonitis.

Prof. Schatz, of Rostock, made a novel address upon "Sores of the Bladder and their Cure." He cited a case where he cut down into the bladder above the pubes, cut out a "sore" and brought the resected parts together, thus attaining a successful result.

Dr. Zeiss, of Erfurt, detailed some cases of Alexander's operation, which provoked a general discussion, and a very interesting reply from Prof. Mundé. Sufficient time, however, had not elapsed since Dr. Zeiss's first case, and the constant necessary (?) use of a pessary was regarded with much suspicion.

Prof. Mundé stated that where he had succeeded perfectly in finding the ligaments, his results had been typical. He considered the operation one of great value in a limited field.

Dr. Skutsch exhibited a "New Instrument for Obtaining Measurements of the Internal Oblique and Transverse Diameters of the Pelvis." It consists of a board, fastened to the pelvis by straps resting upon the pubes and the anterior superior iliac spines. Just over the pubes are two sockets which receive two long fingers of lead. In use, one of these fingers is attached to a socket, and is then carried by its free end upon the index finger up into the pelvis and pressed high up against the ileo-pectineal line. The lead retains the curve impressed upon it on being removed, the same is done with the other finger of lead for the other side. The apparatus is then removed, the fingers are reattached, and the transverse pelvic diameter is the distance between the free ends.

Prof. Küstner then exhibited a pair of tongs like old hair-crimpers, which are intended to be carried high up in the vagina and separated, an arc at the handles indicating the divergence and, therefore, the diameter in question.

Dr. Firnig then narrated a case of Cæsarean section and exhibited the pelvis which was extremely narrowed by rachitis.

The number of addresses to be delivered on Saturday was so large, that no discussions were allowed, and the members were obliged to time themselves.

Prof. Küstner brought before the meeting his results in the "Treatment of Lacerated Perineum by Different Methods," with an estimate of the relative value of the various procedures. He spoke particularly of the operations of Hegar, Freund, Simon, Bischoff, Winckel, and Fritsch; he also detailed some interesting experiments with a twenty per cent. solution of hydrochlorate of cocaine on three cases.

Prof. Olshausen next spoke of the "Nutrient Value of the Amnion."

Dr. Wyder's address was upon the "Changes in the Uterine Mucosa Consequent upon the Presence of Submucous, Subserous, and Interstitial Myomata Respectively." He exhibited some interesting drawings and sections.

Dr. Hofmeier, of Berlin, presented three very interesting specimens to the Society. 1. A tubal pregnancy in the second month. 2. A uterus with large subserous myomata successfully removed. 3. A uterus from a case of eclampsia showing contraction ring.

Prof. Schwartz spoke upon the total extirpation of the uterus for cancer: Dr. Battlehner, upon the healing of cervico-vaginal lacerations.

In conclusion, Prof. Credé moved that the Society express its most cordial approval of Prof. Winckel's efforts in inviting and accommodating the members, and that they should signify their assent by all rising, which was done. The Society then adjourned for two years. Most of the members remained in the city the rest of the afternoon to witness the funeral of King Ludwig.

Howard A. Kelly, M.D.

Leipzig, June 23, 1886.

NEWS ITEMS.

VIENNA.

(From our Special Correspondent.)

The Appointment of a Successor to Professor Spaeth.—Medical men in Vienna have been awaiting

with interest the announcement of the appointment of a successor to Professor Spaeth, in the second clinic for obstetrics. As candidates, were mentioned Prof. Gustave Braun, who has charge of the third clinic—that for midwives—and also Prof. Breisky, from the Lying-in Hospital of Prague. The first-named candidate was supported by the influence of his brother, Carl Braun; the second by some others of the hospital Faculty. After a shorter time than is usually given to the consideration of such appointments, the Emperor and the Ministers returned the name of Prof. Breisky, quite to the surprise of many, who thought the influence of Carl Braun sufficient to secure the appointment of his brother. The Prague Clinic has a beautiful building, and is in fine condition, and Prof. Breisky has been most successful in his teaching and practice. He will be welcomed to Vienna by many friends and admirers. Prof. Spaeth was retired with abundant honors, including a decoration from the Emperor. As a friend and follower of Semmelweiss, he was one of the first to recognize the value of the latter's theory regarding puerperal sepsis, and his influence and work have been on the side of conservative midwifery. His clinic has at present attained as high an order of excellence as is possible in so old a building with the present system of attendants and the large number and character of patients. This result is owing to the personal attention of the assistants, and the following statistics of the year 1885 may prove of interest, as showing the results obtained in this clinic:

Number of births	2761
Labors ending spontaneously . .	2456
Abnormal labors	305
Percentage of septic deaths, $\frac{57}{100}$ths of 1 per cent.	

This is but one-third of the material in the Vienna Hospital, the remainder being divided between the brothers, Professors Carl and Gustave Braun.

THE AMERICAN NEUROLOGICAL ASSOCIATION will hold its annual meeting at the Howland House, Long Branch, N. J., on Wednesday, Thursday, and Friday, July 21, 22, and 23, 1886. Two daily sessions will be held, one in the morning from 10 A.M. to 1 P.M., and one in the afternoon from 3 to 5 P.M.

THE AMERICAN OTOLOGICAL SOCIETY will meet at New London on Tuesday, July 20th.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY will meet at New London, on Wednesday, July 21st.

AN INTEMPERATE ABSTAINER.—An unfortunate teetotaller some months ago attended a temperance lecture, and was there informed that ammonia was the best substitute for alcohol. Having a pain in the chest, he took a tablespoonful of the drug, which caused his death after great agony. At the inquest the jury returned a verdict of accidental death.

ABSENCE OF RABIES IN BUENOS AYRES.—In an article published in the *Revista Med. Quirurg. de Buenos Ayres*, Dr. J. Franceschi states that no case of rabies has been observed in that province during the past fifteen years, although the proportion of dogs kept there is larger than in any European country. He believes that rabies may be produced idiopathically in dogs by feeding them on vegetable food exclusively. In Europe meat is scarce and hydrophobia correspondingly common, but in Argentine Republic meat is the common food of dogs, and hydrophobia is unknown.

A NEW LUNATIC ASYLUM is to be established in the northern part of the State of New York. Among the commissioners appointed to choose its situation are Dr. P. M. Wise, of the Willard Asylum, and Dr. J. M. Cleveland, of the Hudson River State Hospital at Poughkeepsie.

THE YALE MEDICAL SCHOOL.—It is announced that Dr. James Campbell, of Hartford, has been appointed Professor of Obstetrics.

THE UNIVERSITY OF VIRGINIA.—Dr. W. B. Towles has been elected Professor of Anatomy.

PERSONAL ITEMS.—Dr. Louis A. Duhring, of Philadelphia, and Dr. Joseph W. Howe, of New York, sailed for Europe on Saturday, the 26th ult. Dr. Fordyce Barker, of New York, Dr. John S. Billings, U. S. A., Dr. James R. Chadwick, of Boston, and Dr. H. P. C. Wilson, of Baltimore, sailed on Thursday, July 8th.

LAFAYETTE COLLEGE, of Easton, Pa., has conferred the degree of LL.D. on Dr. Henry D. Swift, of the University of Pennsylvania, and the degree of A.M. on Dr. J. Clinton Edgar, of New York.

SIR JAMES PAGET has just been elected a foreign associate of the Academy of Medicine of Paris, by 57 votes out of 64. Dr. Charles West, of London, and M. van Beneke, of Brussels, were the other candidates.

A PASTEUR INSTITUTE IN MILAN.—Milan is the first of Italian cities to turn M. Pasteur's experiences to practical account. Dr. Barattieri has returned to Milan from Paris, after having spent three months at the Pasteur laboratory, where he has been well initiated into the orthodox method of combating hydrophobia, taking with him a quantity of virus and several of the animals already operated upon by the great French scientist. After a consultation between the directors of the Scuola di Veterinaria and others, it has been decided to found a Pasteur Institute in Milan, the expenses of which are to be defrayed by the municipal authorities and the Government. Meanwhile, Dr. Barattieri has been accommodated with a temporary laboratory, where he is to commence active operations in the course of a week or two. Dr. Ullman, of the University of Vienna, who has also spent several weeks in the laboratory of M. Pasteur, has returned, taking with him some of the virus with which he proceeded to inoculate his first batch of patients, consisting of thirteen men and one woman, all said to have been bitten by rabid dogs.

PROFESSOR VIRCHOW recently completed the thirtieth year of his occupancy of the chair of Pathological Anatomy at Berlin.

DANGERS OF PERAMBULATORS.—Dr. Maclagan, the medical officer of the Hexham Rural Sanitary District, England, while calling attention to the fact that in his

district 124 children out of 1000 die during their first year, attributes much of the mortality to "inflammatory diseases, cerebral and pulmonary," caused by exposure in perambulators. Dr. Taylor, of Scarborough, also lays much stress on the matter of wind-pressure to which the perambulator exposes children, in the causation of diseases of the throat and chest.

Honors to Dr. Dalton.—The degree of LL.D. was conferred upon Dr. John C. Dalton, President of the College of Physicians and Surgeons, New York, by Princeton College, at its recent commencement.

Scientific Sewerage for Philadelphia.—At a meeting of the Board of Health of Philadelphia a few days ago a petition was presented by Dr. Ford from a number of citizens, who he stated represented over a hundred millions of dollars, in favor of an improved sewerage system, and offered the following, which was unanimously adopted: "*Resolved*, That the Board of Health of Philadelphia earnestly request City Councils to give prompt and favorable consideration to the petition of citizens praying for the authorization of a thorough scientific investigation of the sewerage system of the city, with the object of discovering and correcting the radical faults connected therewith."

Election of Dr. Brown-Séquard to the Academy of Sciences.—Dr. Brown-Séquard was elected a member of the Paris Academy of Sciences at its last meeting on June 21st, in the Section of Medicine and Surgery. The eminent biologist was elected by a large majority, and the victory was the more creditable as the competitors of Dr. Brown-Séquard were all men of note, in proof of which statement may be mentioned the names of Germain-Sée, Bouchard, Jaccoud, Hayem, and Richet.

Spontaneous Transformation of Morphine into Apomorphine.—A solution of hydrochlorate of morphine for subcutaneous injection (three per cent.) was ordered for a patient, and its injection was promptly followed by relief of the pain, without any gastric symptoms whatever. Eleven months later, the patient made use of the same solution; but, this time, the injections gave rise immediately to violent and uncontrollable vomiting. The solution was given to a well-known analyst at Paris for examination, and he ascertained that apomorphine was present, thus accounting for the sickness. He recommended, in consequence, that solutions of the salts of morphine should never be kept longer than four weeks, and that freshly prepared solutions should not be mixed with the old.

Mode of Payment of Fees in Vienna.—In Vienna it is usual to give medical men their fees at the end of the attendance, so that when honoraria are offered the hint is understood and no more visits are paid without further request. Some time since a practitioner was sent for to see the child of a certain tailor, whom he found suffering from fever, but with no signs enabling a diagnosis to be made. The fee was given, and the doctor hearing nothing further, did not consider his services were required again. However, it was discovered by the police, shortly afterward, that some of the children in the tailor's house were suffering from smallpox. The tailor and the doctor were both summoned, the latter being acquitted, while the former, who was shown not only to have concealed the existence of the disease, but to have taken in work at the time, was sentenced to ten days' imprisonment.

Poisonous Gloves.—The *Provincial Medical Journal* says: "We have recently had several cases of a peculiar herpetic eruption about the lips of children, and which we have satisfied ourselves were due to cheaply dyed gloves. The children wearing these gloves rubbed their mouths with them. The rash could be produced at will. When the gloves were taken off and not worn for some time, there was no rash. When, on the other hand, the gloves were worn, and the children repeated the practice, the rash returned. Clearly it was a case of cause and effect. Owing to competition, manufacturers endeavor to cut down the expenses of production by using the cheapest form of dye; and the public support them by buying cheap products."

NOTES AND QUERIES.

CATGUT SUTURES FOR OPERATIONS UPON THE LACERATED CERVIX UTERI.

To the Editor of The Medical News.

Sir: In The Medical News for July 3, 1886, Dr. Sutton gives the history of fifty cases of lacerated cervix which were operated upon by him, and in which silkworm gut was used as the material for sutures. There can be no doubt that silkworm gut is better than silk, and that silk is better than silver wire; but why is it that gynecologists persist in using *sutures which must be removed?* General surgeons wash out the vagina with peroxide of hydrogen solution, or with bichloride of mercury solution, insert sutures of antiseptically prepared catgut, sprinkle iodoform over the vaginal mucous membrane, and make no calculations for disturbing the sutures again until another laceration occurs.

Robert T. Morris, M.D.

New York, July 10, 1886.

PIG-BACKED KIDNEY, A CORRECTION.

To the Editor of The Medical News,

Sir: I notice an error in the report on my remarks on the "pig-backed" kidney of alcoholism, read before the Association of American Physicians, and published in your issue of July 3, 1886, page 18. You would greatly oblige me by inserting in your columns this correction:

"The kidneys, in sudden death from typical alcoholism (a cyanotic induration designated from its shape as the *pig-backed* kidney) are one-third to one-half *larger*, and sometimes double their normal size;" instead of, "is one-third to one-half its normal size," as the reporter gave it.

Very respectfully yours,
H. F. Formad.

University of Pennsylvania,
July 10, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JULY 6 TO JULY 12, 1886.

Page, Charles, *Lieutenant-Colonel and Surgeon.*—Leave of absence further extended one month—*S. O. 156, A. G. O.*, July 8, 1886.

Waters, Wm. E., *Major and Surgeon.*—Ordered for duty as Post Surgeon, Fort Spokam, Washington Territory.—*S. O. 112, Department of Colorado*, July 2, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

POLIOMYELITIS ANTERIOR CHRONICA.

An Abstract of a Clinical Lecture.

BY JAMES STEWART, M.D.,

PROFESSOR OF PHARMACOLOGY AND THERAPEUTICS IN MCGILL UNIVERSITY, MONTREAL; AND DIRECTOR OF THE UNIVERSITY CLINIC FOR DISEASES OF THE NERVOUS SYSTEM.

By chronic poliomyelitis is to be understood, not the acutely beginning poliomyelitis which has become chronic, but that form of myelitis of the anterior horns which is essentially a chronic affection from its very commencement.

It is well known that the onset of acute poliomyelitis, or what is more commonly called infantile paralysis, is very sudden. A child goes to bed well, or is perhaps a little feverish; in the morning one limb, or perhaps a single muscular district of a limb, is paretic. In a few hours the paresis becomes paralysis, while at the same time other muscular districts become rapidly weak, and soon powerless. In the course of two or three days the disease has reached its full extent. If any change takes place afterward, it is one toward recovery. In chronic poliomyelitis the onset is very gradual, and is not attended by any general febrile disturbance. The disease creeps slowly along, taking weeks, and even months before an apparent weakness becomes a decided paresis or paralysis.

In the acute disease we are safe in saying that after the third or fourth day there will be no increase in either the extent or degree of paralysis, but in the chronic variety there is no telling when it will come to a stand-still.

The little patient before you is four years of age. She first came under my observation two years ago at the University Dispensary, when she was suffering from complete paralysis of the muscles of the legs and feet.

The child was in perfect health up to the end of her first year, being able to walk and run about with greater alacrity than children generally do when twelve months old. At this time she was taken ill with a severe chronic diarrhœa, which lasted for four months. During the latter four weeks of the course of this trouble, the mother began to notice that she did not move either lower limb as freely as she formerly did. This weakness of the lower extremities slowly increased, but it was fully three months before it had developed into a complete paralysis.

She is the youngest of eight children, five of whom are living and three died in infancy. The cause of death in two was diarrhœa, while the third died from bronchitis. Father and mother are living and in good health.

State when she came under observation two years ago.—There was complete paralysis of the muscular districts of the feet and legs supplied by the crurals, and paresis of those innervated from the lumbar plexus. Flexion and extension of the knee-joints were very imperfect. The hip-joint movements were also very limited.

She did not at that time complain of any pain in her lower limbs or elsewhere, nor had there been any symptom of suffering from the beginning of the trouble. The paralyzed muscles were soft and flaccid. There was considerable atrophy of the paralyzed and paretic muscles. The thigh muscles were, however, of fair volume. There was an entire absence of both the patellar and plantar reflexes.

There was complete loss of the faradic irritability of the nerves and muscles of the lower limbs.

There was no response from galvanization of the nerves of the lower limbs, but there was slow contraction of the muscles when they were directly galvanized. There was, however, no change in the normal electrical formula: the KSZLAOZ.

There was no interference with the functions of the bladder and rectum.

There was no motor or sensory disorder of the upper extremities.

The child continued in the state just described for some two months after coming under observation. During this period no treatment was instituted, except the internal use of arsenic.

The proper treatment of the case was commenced about two months after her condition had remained stationary for several weeks. It consisted in the use of galvanism, the anode (labile) being applied to the lumbar region, and the cathode (stabile) to the muscles and nerves of the lower extremities.

Progress.—After two months of the above treatment, the first traces of returning motility were observed in the peroneal districts. In the course of four months, she was able to flex and extend the toes freely, and shortly afterward she was able to stand with the aid of a chair. At the end of the sixth month of the treatment she was able to stand without any support. She has continued to progress to recovery, but very slowly, however.

Present state.—As this patient walks across the arena, you will notice that she does so without any dragging of her legs. The toes are turned outward, but this is the only sign of deficient motility, and as this abduction is steadily decreasing it is not vain to hope that before long it will completely disappear.

The muscles are of good volume. There is neither contracture nor undue flaccidity.

The patellar reflexes of both legs have not as yet reappeared, although at times there is a perceptible contraction of the left quadriceps when the patellar tendon of that side is percussed.

The modified reaction of degeneration which was formerly present has entirely disappeared. For the past six months the muscles and nerves of both limbs respond to the induced current, and since this has taken place the treatment has been mostly carried out by the use of this form of electricity.

Diagnosis.—Of the nature of this case there can, I think, be no question whatever. It is one of *spinal atrophic paralysis* of the muscles of the lower limbs, of very slow but progressive development, and due to a chronic myelitis (?) of the anterior cornua. The presence of the reaction of degeneration with the loss of the patellar reflexes, and the absence of all disorder of sensation and the non-involvement of the sphincters, prove conclusively its nature.

The symptoms may be classified as follows:

1. Positive:
   - *a.* Diffuse paralysis.
   - *b.* Atrophy of the paralyzed muscles.
   - *c.* Loss of the patellar reflexes.
   - *d.* The presence of the reaction of degeneration.
2. Negative:
   - *a.* Entire absence of sensory disorders.
   - *b.* No hypertonus.
   - *c.* Non-involvement of the sphincters.

A paralysis of central origin is excluded on account of the absence of the patellar reflexes and the presence of the reaction of degeneration. A general neuritis of the lower limbs is also excluded by the absence of any disorder of sensation and the diffuse distribution of the paralysis.

The morbid process commenced in the nuclei of origin of the sacral plexus, and very slowly ascended so as to involve the nuclei of the lumbar plexus. The latter were later and less severely affected than the former.

In the present state of our knowledge it is difficult to determine the exact character of this morbid process, and in what way it differs from the acute affection of the anterior cornua.

The case is remarkable as occurring in so young a patient. Chronic poliomyelitis is not an infrequent disease of adult life, but it is very rarely seen in children under three years of age. The acute affection is, however, essentially a disease of childhood, its occurrence in adult life being very uncommon.

The case may be briefly summarized as follows:

A child about eighteen months of age, who has been troubled with diarrhœa for four months, gradually but completely loses all power to move her lower extremities; regains this power almost completely in the course of a year and a half, while being treated by galvanism.

The favorable result in this case was looked for and promised; this prognosis being based on the published experience of Erb, Hughes Bennett, and others.

Nearly all the recorded examples have eventually recovered, and it is in this favorable ending that we have another marked difference between acute and chronic poliomyelitis. In the former no improvement can be looked for after the sixth month, while in the latter a complete cure is the rule.

ORIGINAL ARTICLES.

A CASE OF TYPHOID FEVER COMPLICATED WITH ABSCESS OF THE LIVER; AND SOME REMARKS ON THE ROSEMONT OUTBREAK OF 1885.

BY GEORGE S. GERHARD, M.D.,
OF ARDMORE, PENNSYLVANIA.

W. H., æt. twenty-six, born in Wales, a gardener by occupation, is a well-built man of large frame, and one of a family of five brothers, an only sister having died of phthisis. His parents are living and in good health, and his own health was always good until the autumn of 1881, when he had an attack of intermittent fever, contracted while he was living in a malarial region, but from this he made an excellent recovery. After this no definite illness occurred until March 2, 1885, when he was suddenly taken, while at work, with abdominal pain and vomiting. The former symptom was of short duration, but more or less irritability of stomach persisted until quite late in the evening, and on the following day, though somewhat better, he was still unable to work.

On March 4th, the patient, whom I now saw for the first time, was found to have a temperature of $101\frac{4}{5}°$, and a pulse of 92; he was notably weak, complained of pains in the extremities, and presented a marked expression of hebetude. His tongue, though moist, was heavily coated, and there was slight nausea, with tendency to loose bowels; the abdomen was somewhat full but not tender. There was cough from bronchial irritation, as shown by numerous coarse râles in the chest, but there was no dulness upon percussion in any part. The patient was ordered to have a liquid diet and to take quinine and a mineral acid.

On the 6th, the morning temperature was $102\frac{4}{5}°$, and the pulse 96; the bowels were still somewhat loose, and the abdomen was rather meteoric.

On the 14th, the note was taken that the patient was quite delirious at night, and though he was rational during the day, his hebetude was extreme, and he was excessively deaf, so much so, that he had to be spoken to in the loudest voice. The morning temperature was $102\frac{3}{5}°$, and in the evening it was 104°; the pulse was 104 in the morning and 116 in the evening. The patient had had epistaxis of moderate severity on several occasions. His cough was excessive but was not accompanied by expectoration. Physical examination revealed coarse mucous râles on both sides of the chest, and friction with impaired resonance at the right base. The tongue was heavily coated and dry, with tendency to browning in the centre. The abdomen was tympanitic, and upon its surface and upon the lower part of the chest there was a copious eruption of rose spots. The right hypochondrium was somewhat prominent, and on deep pressure there was marked tenderness of this region and of the epigastrium. The limit of absolute hepatic dulness began above the sixth rib and extended to a point below the costal border. The bowels, though confined, were exceedingly sensitive to the action of a laxative, a small teaspoonful of oil causing several thin, ochre-yellow stools. The

patient was ordered carbonate of ammonia and turpentine, with moderate stimulation in addition to his quinine, and was to have turpentine stupes applied to the chest, morning and evening.

On the 21st, the delirium at night was more pronounced, and there was occasional wandering during the day. The temperature range for the morning was from 102° to 103°, and for the evening 102⅘° to 104°; the pulse 100 to 120, was weaker and decidedly dicrotic. The cough, which was excessive, indeed, at times almost incessant, was attended with pain in the lower part of the right chest; the respirations were 36 and somewhat shallow. On the right side of the chest the dulness upon percussion began in the fourth interspace and extended beyond the border of the ribs; posteriorly on the same side the percussion note was dull from the spine of the scapula to the eighth rib, and absolutely flat from this point to the base of the chest. Above in the dull region there were lessened vocal fremitus, indistinct blowing respiration, and, on full inspiration, coarse friction. Spots were still to be seen on the abdomen and chest, but they were of a darker color and did not quite disappear on pressure. There was also a copious eruption of sudamina. Exhaustive sweats occurred daily, usually in the afternoon, leaving the patient in a state of intense prostration and calling for frequent stimulation.

On April 4th, the patient was rapidly losing flesh and appeared greatly exhausted. The pulse was exceedingly weak and there was more or less constant delirium. The tongue, tremulously protruded, was dry and brown; there was no vomiting; the bowels were quite loose again, but the frequency of the movements was under the control of small doses of opium. The abdominal symptoms were unchanged, excepting as regarded a recently developed sense of fluctuation over the right lobe of the liver, which removed all doubts, if there were any, of the existence of abscess. The cough, always dry, was still excessive and painful. The effusion in the right pleural cavity had increased, and the right lung, partly from this cause and partly from the encroachment of the enlarged liver, was pushed high up in the chest. The pain in the right side, frequently complained of, was in a measure relieved by the application of stupes.

On April 9th Dr. Hutchinson kindly examined the patient with me, more especially with a view of determining the propriety of attempting to remove the contents of the abscess by operation. On due consideration, however, a procedure of this kind was considered unjustifiable, because of the patient's low state, and because of the possibility of there being more than one abscess. The correctness of this decision, as will be seen further on, was verified by the results of the autopsy. From this time on, there was nothing especially interesting to note beyond the fact that the patient, kept alive by a retentive stomach, finally died from exhaustion on the 25th of April, the fifty-eighth day of his illness.

At the autopsy, made forty-eight hours after death, the body was found to be in a state of extreme emaciation. On opening the chest a large serous effusion was found on the right side, with patches of lymph scattered here and there on the costal and pulmonary pleura, and many easily torn adhesions.

The lung itself, though greatly compressed, was still capable of being inflated.

On the left side there was nothing especially abnormal beyond congestion of the bronchial mucous membrane, and marked emphysema of the borders of the lung.

There was no lesion of the heart.

The liver was found to be enormously enlarged, the anterior part of the right lobe being distended with thick creamy pus. Two smaller abscesses occupied the posterior border, between which and the larger one in front there was no discoverable communication. In the left lobe there was a single small collection of pus.

There were patches of recent lymph on the upper surface of the right lobe, and several adhesions of older date. The gall-bladder was normal in appearance, and there was no occlusion of any of the larger bile-ducts.

Examination of the small intestine revealed at the lower end of the ileum several patches of Peyer actively ulcerated, and others partly or wholly cicatrized.

Remarks.—The above case illustrates, judging from accounts heretofore published, a very rare complication of typhoid fever; indeed, after a search made as thorough as time would permit, I have succeeded in finding but two cases of the kind distinctly reported, both by Bueckling.

Greisinger mentions it as an occasional sequel of typhoid fever, but does not give cases, and Leudet states that cases have been observed by Louis, Andral, Barth, and Tardieu.

It seems to me, however, that in view of the well-known frequent occurrence of hepatic abscess with intestinal lesions of other diseases, particularly dysentery, that in connection with typhoid fever, a disease characterized by ulceration of the intestine, a like association may have been occasionally overlooked. Especially may this be true of localities where suppurative disease of the liver is not an uncommon disorder.

Excepting in hospitals, post-mortem examinations of typhoid fever cases are rarely, if ever, made, and in the former the condition of the liver is not always inquired into, the object of the autopsy being, as a rule, to expose the intestinal lesions for special study, or to satisfy a doubt as to the presence of perforation or other accident.

Without discussing the conflicting opinions held in regard to the pathological bearings of intestinal ulceration and hepatic abscess, it may be sufficient to state that the weight of authority inclines to the belief that in a large percentage of cases there is an intimate causal relation between the two, while, in other instances, the coexistence of the two conditions must be looked upon as purely accidental, the inflammation of the liver having actually antedated the intestinal disease.

Assuming the above view to be the correct one, it must be admitted that conditions favorable to the development of suppurative disease of the liver exist

in typhoid fever, and perhaps the attention I have drawn to the subject may be the means of calling out other reports.

In regard to the origin of this patient's illness no satisfactory explanation could be given, isolated cases of typhoid being of such rare occurrence in the country. Local outbreaks of fever, however, are far from being uncommon, even in the healthiest country district, but may always, I think, on careful investigation, be traced to their proper origin.

Such an epidemic occurred at Rosemont, on the line of the Pennsylvania Railway, last year, a brief sketch of which, in this connection, may be of some interest. According to my belief the disease originated by importation, the first case having been that of a lady, a patient of my own, who must have been actually ill with the disease at the time of her arrival at Rosemont. This belief is further strengthened by the fact that the patient had recently left a locality which was itself the scene of an outbreak of typhoid of virulent type.

The infection of a district previously healthy by the arrival in it of a person suffering from typhoid is an admitted fact, though Murchison states that "such occurrences are exceptional, and that the number of cases where the disease is introduced into a new locality without spreading, far exceeds that in which it is propagated."

In the case of the Rosemont epidemic I am sure that the disease would not have taken such a hold had its propagation not been favored by a well-known unsanitary condition of the immediate surroundings. Since this occurrence of fever, however, improvements have been made, and the lesson taught will be, I trust, a lasting one.

The case to which I have alluded as being responsible for this outbreak of fever proved so rapidly fatal, and bore such a striking resemblance to typhus, that a detailed report of it may be of interest:

Miss A., aged twenty-three, was taken ill while visiting a friend at Rosemont, on the night of June 13, 1885, having arrived from an adjoining State two days before seemingly in her usual health, which at the best of times was never good. When I was called to the patient on the 14th, I learned that she had had vomiting and diarrhœa during the night, but there was nothing to attract special attention beyond what might follow an acute gastro-intestinal attack. On the 15th, however, there was suspicious prostration, with increasing temperature, and an exceedingly feeble pulse. There were complaints of general articular pains, especially localized in the right knee, which joint was tender but not red or swollen. On the 16th the temperature was 103° in the morning and the pulse 116. There were evident hebetude and slight hesitation of speech, though no actual delirium. The tongue was red, and somewhat dry in the centre, the stomach exceedingly irritable, but retaining small quantities of milk and ammonia; the bowels inclined to looseness, and the abdomen full but not tender.

On the 17th vomiting better, and bowels not so loose; the tongue very red and irregularly coated, and there was slight tenderness in the right iliac fossa. There was delirium during the night. The patient's face was pale, the pupils dilated, and the skin hot and dry; temperature 104⅘°.

On the 18th, violent delirium during the night; there was marked subsultus and slight deafness; temperature 104°; pulse 120, and dicrotic; first sound of the heart almost inaudible; slight nose-bleed.

On the 20th, periods of delirium occurred more frequently; skin hot and dry, and covered with petechiæ.

On the 21st, more or less constant delirium and intense prostration; temperature 105°; pulse 120; tongue red as before, with dry centre; teeth covered with sordes; bowels moved several times daily; abdomen quite tympanitic; petechiæ more numerous.

On the 22d, patient violently delirious, requiring the combined efforts of two nurses and an assistant to keep her in bed; refuses all nourishment.

On the 23d, death occurred during the night, the patient having become comatose.

Between the date of this case and the early part of December following, there were forty-three persons attacked with fever in Rosemont, or within a radius of two miles of that locality. All of the cases occurring outside of Rosemont were related in some way to the source of infection, either by actual intercourse with the sick on the part of the individuals attacked or by having to do daily work there, Rosemont being a centre of several trades.

Out of the forty-three cases seven ended fatally. Intestinal hemorrhage occurred in eight cases, of which three were fatal. Infrequency of diarrhœa was the rule, and in many cases the eruption was either absent or imperfectly developed. In other respects there were no peculiarities worthy of note.

Ardmore, Pa., June 11, 1886.

HOMATROPIN HYDROBROMATE.

By EDWARD JACKSON, A.M., M.D.,
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Its Value as a Mydriatic.

Homatropin is an efficient, reliable mydriatic. Still, many who are engaged in the practice of ophthalmology do not so regard it; and their idea that its mydriatic power is weak and uncertain, finds support in the literature pertaining to it. Such an impression is supported directly by the observations of those who have used the drug, and failed to get full mydriasis and paralysis of accommodation with it; and indirectly by the testimony of those who claim complete success with it, yet evince loose notions of what constitutes complete mydriasis, or who claim to have attained the desired result by methods of application that have frequently proven ineffectual in the hands of others. That is, there is not only direct testimony against the efficiency of homatropin, but, indirectly, some of the testimony in its favor is unreliable. To meet this it must be shown, first, that certain observers have not employed the drug in such a way as to develop its full power; second, that there is other testimony in its favor that cannot be impeached.

It is true of any mydriatic that when not applied

in sufficient quantity, when the applications have not been repeated often enough, or when too long a time or too short a time is suffered to elapse after its application, the accommodation is found incompletely paralyzed. And, as of other mydriatics, this is true of homatropin. It is also true that the dose of homatropin, and the time of its maximum effect, differ from the dose and the time for other mydriatics. Hence, to use homatropin as we use atropin or duboisin is unsatisfactory. It would, for different reasons, be even more unsatisfactory to use the latter drugs as homatropin should be used.

Strength of Solution.—I have always used homatropin as the hydrobromate, dissolved in distilled water. No material deterioration has been noticed after the solution has been kept several weeks, although, like other solutions of alkaloids, it becomes infested with low forms of vegetable life. Commencing with a solution of 1 in 80, I soon increased it to 1 in 60, and later to 1 in 50 (two per cent.). The latter or a two and a half per cent. solution (1 in 40) I have used habitually for the last four years, and still find it most satisfactory. I have also used three, four, five, and ten per cent. solutions, the latter being almost a saturated solution of the samples of the drug that have come to me. Solutions of 1 to 100, 1 to 200, 1 to 500, and 1 to 5000, have also been tried. The two or two and one-half per cent. solution is preferred, because weaker solutions sometimes fail to produce complete paralysis of accommodation at the usual time, and though a one per cent. or even a weaker solution will generally and if persistently applied, probably always, secure complete paralysis of accommodation, it is inconvenient to find some accommodative power present when the time comes at which it was intended to proceed to measure the refraction. On the other hand, the drug is too costly to be wasted, and stronger solutions cannot be relied on, unless used in the same way as that chosen above. For simply dilating the pupil a strength of 1 to 500, or a grain to an ounce, is commonly sufficient; and for purposes of diagnosis it should be relied on to the exclusion of stronger solutions, or those of atropin, duboisin, daturin, or hyoscyamin in all persons who, having passed the age of fifty, have lost most of the power of accommodation, and are liable to senile glaucoma.

Repeated instillations must be used where it is desired to secure complete paralysis of accommodation. Sometimes a single instillation of a one per cent. solution will accomplish it. But, on the other hand, I have more than once seen a full instillation of a ten per cent. solution fail to give it. Two or three instillations of the two per cent. solution will almost always secure it, and four or five thorough instillations of that solution will completely paralyze the accommodation in every case. At least, I have not yet found it fail to do so. This subject is further pursued under a different heading.

The instillations must be repeated at short intervals, to get the full mydriatic effect. Say from five to ten minutes apart. The safety of such a course will appear from what is to be said of its general action. The necessity for it arises from the brevity of the influence of the drug, and the importance of getting the effect of the whole amount used, at the time that it is desired to have the accommodative power completely in abeyance.

The mydriasis produced by homatropin, used as above indicated, closely resembles that produced by atropin, duboisin, daturin, or hyoscyamin, except that it is of shorter duration. Enlargement of the pupil and paresis of accommodation begin and end together. The shortest period between the first instillation and the first noticeable change in the pupil, was seven minutes, the longest was twenty-eight minutes. Usually it was between ten and twenty minutes. The shortest period between the last instillation and complete recovery was twenty-three hours; the longest, less than ninety-six hours. Patients have stated that they had entirely recovered in as little as twelve hours, but they did not return to have the fact verified; and I have often noted remaining mydriasis in those who thought it had passed off several hours, or even a day before. On the other hand, with homatropin, as with other mydriatics, an occasional patient will continue to ascribe symptoms to the mydriatic after its effect has really passed away. The drug attains complete control of accommodation in from forty to ninety minutes after the first instillation, usually at the end of the first hour; and used according to the method above indicated, this complete control of accommodation is retained for a period of from one to six hours without further instillations. By careful instillations repeated every hour, it may be sustained indefinitely. To determine the state of refraction in young persons, the second hour after completing the cumulative instillations is the best time.

Its reliability as a mydriatic is absolute if the drug be properly used. From the brevity of its action and its cost, it is especially important that each instillation be effectually made. When other mydriatics are used, such as duboisin, the eye at any one time will feel the effect of all the instillations that have been made in the preceding three or four days. And if one or several of these have been ineffectual, the others will often be sufficient to produce the desired effect. But this would not be true of homatropin, unless the strong solution were being instilled at intervals of a half hour or less. When the instillation of the drug is entrusted to a person entirely inexperienced in such a manipulation, it is almost certain that some of the instillations will be ineffectual, and that much less of the drug will find its way into the eye than the number of instillations would lead one to suppose. This is the explanation of some cases of apparent obstinate resistance to the action of a mydriatic. Hence, I commonly instill homatropin myself. I did so in all the cases, two hundred and eighty, used as the basis of this paper.

It is not perfectly easy to determine when the power of accommodation is in complete abeyance. Only careful and somewhat prolonged testing will make this certain. To decide the point I have used three tests: First, is there complete inability to vary the distance at which fine print can be read through convex glasses? Second, do weak (quarter or half dioptric) convex and concave lenses, added to the correcting lens, equally impair distant vision?

No.	Age.	Correction under Homatropin.	Correction under second Mydriatic.
1	9	R. + 1.5 ⊂ + 3.25 cy. ax. 95° = 20/L	R. — 1.5 ⊂ — 3 cy. ax. 95° = 20/LXX
		L. + 1.5 ⊂ — 4. cy. ax. 90° = 20/L	L. — 1.5 ⊂ + 4 cy. ax. 90° = 20/L —
2	11	R. + 0.5 ⊂ + 3.75 cy. ax. 100° = 20/XL	R. — 0.5 ⊂ + 3.75 cy. ax. 100° = 20/XL
		L. — 0.75 ⊂ — 4.5 cy. ax. 85° = 20/XL —	L. — 0.5 ⊂ — 4.25 cy. ax. 85° = 20/XL
3	11	R. + 4 ⊂ + 0.5 cy. ax. 90° = 20/XXX	R. — 4 ⊂ — 0.5 cy. ax. 90° = 20/XXX
		L. + 3.5 ⊂ + 0.5 cy. ax. 90° = 20/XX —	L. + 3.5 ⊂ + 0.5 cy. ax. 90° = 20/XX —
4	12	R. + 2.25 ⊂ — 0.5 cy. ax. 90° = 20/XX	R. + 2.25 ⊂ + 0.5 cy. ax. 90° = 20/XX
		L. + 2. ⊂ + 0.5 cy. ax. 90° = 20/XX	L. + 2 ⊂ + 0.5 cy. ax. 90° = 20/XX
5	12	R. + 2.5 sph. = 20/XL	R. + 2.5 sph. = 20/XL
		L. + 2.25 sph. = 20/XXX	L. + 2.25 sph. = 20/XXX
6	12	R. + 5.5 ⊂ + 3. cy. ax. 90° = 20/L	R. + 5.5 ⊂ + 3 cy. ax. 90° = 20/L
		L. + 5.5 ⊂ + 3. cy. ax. 90° = 20/L	L. + 5.5 ⊂ + 3 cy. ax. 99° = 20/L
7	13	R. 0.5 ⊂ + 0.5 cy. ax 90° = 20/XX	R. 0.5 ⊂ + 0.5 cy. ax. 90° = 20/XX
		L. 0.5 ⊂ + 0.25 cy. ax. 90° = 20/XX —	L. 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX —
8	13	R. + 1.25 sph. = 20/XX	R. + 1.25 sph. = 20/XX
		L. + 1.25 sph. = 20/XX	L. + 1.25 sph. = 20/XX
9	14	R. — 2.25 ⊂ + 4.25 cy. ax. 107° = 20/XL	R. — 2.25 ⊂ + 4.25 cy. ax. 107° = 20/XL
		L. — 1.25 ⊂ + 3.25 cy. ax. 75° = 20/XXX	L. — 1.25 ⊂ + 3.25 cy. ax. 75° = 20/XXX
10	14	R. + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX	R + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX
		L. + 0.5 ⊂ + 0.5 cy. ax. 90° = 20/XX	L. + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX
11	15	R. — 0.75 ⊂ — 2.25 cy. ax. 170° = 20/XXX	R. — 0.75 ⊂ — 2.25 cy. ax. 170° = 20/XXX
		L. + 1 cy. ax. 100° = 20/XX	L. + 1 cy. ax. 100° = 20/XX
12	16	R. — 7 ⊂ — 1. cy. ax. 180° = 20/L	R. — 7 ⊂ — 1.25 cy. ax. 180° = 20/XL
		L. — 8.5 ⊂ — 1.5 cy. ax. 180° = 20/XL —	L. — 8.5 ⊂ — 1.5 cy. ax. 180° = 20/XL
13	17	R. + 2.75 ⊂ + 0.25 cy. ax. 90° = 20/XXV	R. + 2.75 ⊂ + 0.25 cy. ax. 90° = 20/XXV
		L. + 2.75 ⊂ + 0.25 cy. ax. 90° = 20/XXV	L. + 2.75 ⊂ + 0.25 cy. ax. 90° = 20/XXV
14	18	R. + 1.25 ⊂ + 0.5 cy. ax. 90° = 20/XX	R. + 1.25 ⊂ + 0.5 cy. ax. 90° = 20/XX
		L. + 1.25 ⊂ + 0.5 cy. ax. 90° = 20/XX	L. + 1.25 ⊂ + 0.5 cy. ax. 90° = 20/XX
15	18	R. + 4.5 cy. ax. 105° = 20/LXX	R. + 4.5 cy. ax. 105° = 20/LXX —
		L. — 0.5 ⊂ + 4.5 cy. ax. 75° = 20/CL	L. — 0.5 ⊂ + 5 cy. ax. 75° = 20/CL

No.	Age.	Correction under Homatropin.	Correction under second Mydriatic.
16	20	R. — 1.25 ⊂ + 3.75 cy. ax. 95° = 20/XX —	R. — 1.25 ⊂ + 3.75 cy. ax. 95° = 20/XX —
		L. — 1.25 ⊂ + 4. cy. ax. 90° = 20/XX	L. — 1.25 ⊂ + 4. cy. ax. 90° = 20/XX
17	20	R. + 1 sph. = 20/XV	R. — 0.75 sph. = 20/XV
		L. + 0.75 sph. = 20/XV	L. + 0.75 sph. = 20/XV
18	21	R. — 0.5 ⊂ + 6. cy. ax. 88° = 20/XXX —	R. — 0 5 ⊂ + 6. cy. ax. 88° = 20/XXX —
		L. — 2.5 ⊂ + 5.5 cy. ax. 95° = 20/XX —	L. — 2.5 ⊂ + 5.5 cy. ax. 95° = 20/XX —
19	22	R. + 1.5 ⊂ + 0.5 cy. ax. 75° = 20/XX —	R. + 1.5 ⊂ + 0.25 cy. ax. 75° = 20/XXX —
		L. + 1.5 ⊂ + 0.5 cy. ax. 115° = 20/XX —	L. + 1.5 ⊂ + 0.25 cy. ax. 115° = 20/XXX —
20	23	R. + 6 sph. = 20/XX	R. + 6 sph. = 20/XX
		L. + 5.5 ⊂ + 0.5 cy. ax. 90° = 20/XXX	L. + 5.75 ⊂ + 0.25 cy. ax. 90° = 20/XX —
21	24	R. + 1 sph. = 20/XX —	R. + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XXX
		L. + 1.25 sph. = 20/XX —	L. + 1.25 sph. = 20/XX —
22	24	R. + 1.25 ⊂ + 0.25 cy. ax. 90° = 20/XX —	R. + 1.25 ⊂ + 0.25 cy. ax. 90° = 20/XX
		L. + 1.25 ⊂ + 0.25 cy. ax. 105° = 20/XX	L. + 1.25 ⊂ + 0.25 cy. ax. 105° = 20/XX
23	26	R. + 0.75 ⊂ + 0.5 cy. ax. 90° = 20/XV	R. + 0.75 ⊂ + 0 5 cy. ax. 90° = 20/XV
		L. + 0.75 ⊂ + 0.75 cy. ax. 90° = 20/XV	L. + 0.75 ⊂ + 0.75 cy. ax. 90° = 20/XV
24	26	R. + 2.25 ⊂ + 0.25 cy. ax. 90° = 20/XV —	R. + 2 25 ⊂ + 0.25 cy. ax. 90° = 20/XV —
		L. + 2 ⊂ + 0.25 cy. ax. 180° = 20/XV —	L + 2.25 ⊂ + 0.25 cy. ax. 180° = 20/XV —
25	28	R. + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX	R. + 0 75 ⊂ + 0.25 cy. ax. 90° = 20/XX
		L. + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX	L. + 0.75 ⊂ + 0.25 cy. ax. 90° = 20/XX
26	29	R. + 1 25 sph. = 20/XX —	R. + 1.5 sph. = 20/XX
		L. + 1.5 sph. = 20/XX	L. + 1.5 sph. = 20/XX

Third, *is there no tendency to increased refractive power (lower H., higher M.) after prolonged subjective tests in a good light?* The first I employed in the earlier cases, but have found not entirely satisfactory, because I could not get fine print of the right size and clearness. And there is also the objection that letters seen at a variable distance should be of a variable size. The others have been used in all cases, the third being regarded as most conclusive. I cannot claim that, in all cases in which I have used homatropin I had absolute paralysis of accommodation. All I claim is that a two per cent., or stronger, solution, used in the way proper to it, paralyzes the accommodation just as certainly and thoroughly as a one per cent. solution of atropin or a one-half per cent. solution of duboisin used in the most effective manner. The relative value of homatropin is well shown by the accompanying table. This includes, first, all those cases occurring in private practice, where, after using homatropin and getting a certain result, I so far distrusted the result as to follow with some other mydriatic of better established reputation. Second, some cases from the service of Dr. George C. Harlan, at the Pennsylvania Hospital, in which homatropin was employed for the purpose of testing its relative value. These latter cases were picked in so far as to exclude all too ignorant to allow of satisfactory subjective testing, or whose vision could not be brought to the normal standard by the correction of the ametropia.

Those of the first class often failed to get normal vision with their correcting glasses, such failure being usually associated with high degrees of ametropia. The second column gives the ages of the patients; the third, the correcting lenses selected under homatropin and the vision obtained with them; the fourth, the correcting lenses selected under the other mydriatic and the vision obtained with them.

In all these cases the use of the second mydriatic was begun while the eye was yet under the influence of homatropin, and was continued for from one to seven days before the state of refraction was again tested. In the cases numbered 1, 3, 4, 6, 13, 20, and 24, the second mydriatic was atropin. In cases 2, 11, 13, and 17, it was daturin. In cases 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, and 26, it was duboisin. Case 13 was subjected successively to homatropin, daturin, duboisin, and atropin. The homatropin was always instilled by myself, the second mydriatic commonly used at the patient's home.

Extended analysis of the table is unnecessary; it need only be remarked that in but fifteen out of the fifty-two eyes was there any difference between the first and second results. In eight of these it was one-quarter dioptric in favor of the second mydriatic, in five it was one-quarter dioptric in favor of homatropin, in one it was (in one meridian) one-half dioptric in favor of homatropin, and in another the same in favor of duboisin. In no case was the variation greater than may well be allowed for unavoidable inaccuracy of observation. In no case was the apparent axis of the astigmatism materially changed. When it is borne in mind that the majority of these cases were subjected to the second mydriatic because I was, more than in most cases, inclined to distrust the completeness of the paralysis produced by homatropin, the thorough reliability of homatropin (properly used) as an aid in the diagnosis of ametropia, seems to me incontestable.

Certainly cases such as the above constitute testimony more competent than may be drawn from those in which considerable time has elapsed after the use of the one mydriatic before the second is resorted to. For well-tested cases have convinced me that the state of refraction may change considerably even in a few months, not only toward increased M. and diminished H. but also in the opposite direction. As such cases have already been recorded by others, none need be introduced here.

The General Action of Homatropin.

Solutions of homatropin of ordinary strength produce little if any more unpleasant sensation when applied to the conjunctiva than does distilled water. Five and ten per cent. solutions, especially the latter, cause a notable smarting. This has not, however, in any case lasted as much as five minutes. On other mucous membranes no such sensation is produced. I have never had an opportunity of seeing a conjunctivitis induced or aggravated by the use of any mydriatic. Most writers on this subject mention the occurrence of "conjunctival irritation" after the use of homatropin. The phenomenon referred to very generally attends the instillation of the drug; but I certainly cannot regard it as a conjunctival irritation. It is something entirely different from what occurs after an irritant is applied to the conjunctiva.

When sulphate of copper, mitigated nitrate of silver, or solution of nitrate of silver or sulphate of zinc, of the strengths ordinarily used in ophthalmic practice, glycerole of tannin, boroglyceride, or any decidedly acid solution, is applied to the normal conjunctiva, there is, instantly, a decided sense of smarting, and very quickly marked enlargement of the conjunctival vessels, the smarting and hyperæmia being rather proportioned the one to the other. As the smarting subsides, the hyperæmia subsides; and when all abnormal sensation has disappeared the conjunctival vessels will have returned to pretty nearly their original condition. In contrast with this, let us consider what occurs after the instillation of homatropin. Generally, after the use of a solution as strong as one per cent., nearly always after the cumulative use of a two per cent. solution, and invariably, so far as I have observed, after introducing the ten per cent. solution this occurs: The smarting, if it amounts to that, caused by the instillation, quickly subsides, the appearance of the conjunctiva remaining normal; but after three, five, or ten minutes the normal whiteness of the sclerotic is interrupted by an increased vascularity. This becomes more and more marked, reaches its height about the time the pupil has fairly begun to dilate, remains for a little while stationary, then gradually subsides; so that by the time the mydriatic effect of the drug has reached or just passed the maximum, unless the instillations have been continued, the appearance of the sclerotic has again become normal. This process is entirely unattended by smarting, or any other sensation to be connected with it. The vessels of the palpebral conjunctiva are not noticeably involved. Those of the ocular conjunctiva are somewhat dilated, but the *reddening of the eye is mainly due to the enlargement of the minute vessels that form a rosy zone around the cornea, the straight vessels, and the deeper vessels of the sclerotic.* This hyperæmia is not due to the distilled water which has been used to convey the homatropin to the tissues; for distilled water alone does not produce the least hyperæmia in the normal eye. It is not due to acidity of the solution, for the hyperæmia from that cause is entirely different both in time of appearance and in the non-involvement of the deeper vessels. Moreover, the very slight acidity of the preparations I have used was never sufficient to cause hyperæmia, well-prepared litmus paper being a much more delicate test for acids than increased vascularity of the conjunctiva. I believe this hyperæmia to be due to a specific influence of the drug on those vessels through which, in comparatively concentrated solution, it makes its way to the general circulation.

This effect is not, however, peculiar to homatropin, the same thing occurs after instillations of atropin, duboisin, and daturin, and doubtless, though this I have not tested, after hyoscyamin. That it

should not have been observed with reference to these latter, is to be accounted for by the fact that two per cent. solutions of them, or solutions approaching that strength, are not often used in normal eyes. It is not necessary to comment here upon the influence these observations may have upon theories of the action of mydriatics in ocular inflammations.

Placed on the tongue, homatropin causes a decided bitter taste, which, with strong solutions, lasts for some ten minutes or longer. This taste is very generally noticed by the patient when the drug is at all freely applied in the conjunctival sac. It is then doubtless caused by the portion which makes its way through the lachrymal passages to the mouth. That homatropin produces no dryness or irritation of the mouth or throat, is confirmed by my experience. Very often the direct question was asked, Was any sensation of the kind experienced? In every case but one it was answered negatively. In the exceptional case the patient had previously used atropin, and hastened to say that it was entirely different from the sensations produced by that drug, and of his own accord offered the supposition that the feeling he had experienced was probably not due to the homatropin, but to other causes.

The *local effects produced by the hypodermatic injection of homatropin* are of especial interest when considered in connection with the hyperæmia it produces in the eye. For purposes of comparison, it may be well to bear in mind that the hypodermatic injection of distilled water causes slight smarting in the tract of the wound, and if the injection is large and rapidly thrown in, there may be a sharp pain felt at the point of puncture; which disappears, as pressure is removed from the piston, to return when the fluid is again urged forward, but ceases finally within a minute or two after the completion of the injection. Dependent on the situation and size of the injection, there may be some aching in the part. This lasts but a few minutes. There may also be some numbness, which, in one case, the injection being some twenty minims and placed near the course of the ulnar nerve, extended from the elbow to the tips of the little and ring fingers. But these symptoms all disappear within an hour, leaving only a minute red point to mark the seat of injection; and this, too, has usually disappeared two or three days later. The local effects of a solution of homatropin applied in the same way, are best shown by the following account transcribed from the record of an experiment:

Experiment.—Subject, male, aged twenty-nine. Five minims of a two and one-half per cent. solution, equal to one-eighth grain of the drug, were thrown into the subcutaneous cellular tissue on the outer aspect of the forearm at its upper third. The discomfort was not greater than that produced by distilled water.

15 minutes. There is a distinct elevation of the surface several millimetres in diameter like a wheal, with a pale centre and reddened margins.

25 minutes. This wheal is getting redder in the centre and its red margin is extending outward. It is becoming less elevated.

40 minutes. There is now a reddened area about forty millimetres in diameter. There has been no noticeable impairment or exaltation of sensibility to touch, pain, or heat and cold in this area.

60 minutes. The local redness is fading markedly.

90 minutes. The local redness has almost entirely disappeared: being confined to the immediate neighborhood of the puncture and shading imperceptibly away into the normal color of the skin around it.

10 hours (the next morning). The point of injection is now surrounded by a distinct pink areola some fifty millimetres in diameter, quite tender to the touch.

14 hours. The areola is very distinct, quite red with a sharply marked edge (to the coloring, there is no appreciable swelling), very tender but not altered in size.

36 hours. Areola fading, though still distinct and sore to touch.

Third day. Areola much the same. There is distinct swelling about the point of puncture.

Fourth day. Areola fainter but still perceptibly pink and tender. Its margin not so well defined.

Fifth day. Areola about gone. There is now a distinct, increasing, conoidal, indurated swelling about the seat of puncture, reddened at the apex and sore on pressure.

Sixteenth day. This swelling is now some thirty millimetres in diameter, quite sore and softening at the centre.

Thirty-seventh day. The swelling has somewhat subsided; the softened portion is some twenty millimetres in diameter, covered with purple insensitive skin and surrounded by a narrow ring of induration.

Repetitions of this experiment resulted in essentially the same train of symptoms. The protuberance arising a few minutes after the injection was irregularly flat with abrupt edges, differing entirely from the rounded swelling produced by the subcutaneous injection of fluid; and much wider than the minute elevation that commonly arises at the point of puncture. It was always comparatively pale, sometimes appearing absolutely bloodless; but with a hyperæmic margin which encroached upon it after a little time, and presently swallowed it up. In its turn this primary redness disappeared except at the seat of puncture, to be succeeded some hours later by a larger and more lasting area of hyperæmia. But even the secondary hyperæmia seemed to have no connection with the later inflammation and abscess. The primary hyperæmia seems to me strictly comparable with that noticed in the eye. The late swelling and abscess may be accounted for as eliminative of tissue killed, or hopelessly damaged by contact with a concentrated solution of the drug. That it was not due to accidental contamination of the syringe or fluid injected, is indicated by the facts that the syringe was washed out with boiling water, and the solution boiled immediately before the injection; and that distilled water injected through the same needle with the same syringe, into the same arm, at the same time, failed to produce any unusual effects. Abscess was repeatedly produced, it only followed the injection of at least one-tenth of a grain of the drug in strong (two and one-half per cent) solution. Injection of a smaller amount of the drug or the same amount but in more dilute solution failed to cause anything of the kind. The wheal-like elevation about the seat of puncture was always noticed, as was the primary reddening of the neighboring surface, the extent and duration of these symptoms being directly proportioned to

the dose. The secondary hyperæmia and accompanying tenderness are also directly proportioned to the dose, but were not noticed when less than one-hundredth of a grain had been introduced. The soreness to light touch generally outlasted any noticeable discoloration of the skin.

Action upon the Nervous System.—When a two per cent. solution is used so as to get its cumulative effect on both eyes at once, the total amount of the drug placed in the two conjunctival sacs may be as much as one-eighth to one-fourth of a grain. When using the drug in this way I have nearly always made special inquiry for symptoms referable to it, and have almost invariably elicited negative replies. The same absence of subjective symptoms attended the taking of one-eighth or one-sixth of a grain on the empty stomach. In three instances, however, after pretty liberal use of the drug in both eyes, patients spoke of feeling a little "strange" or "intoxicated;" but neither their speech nor movements gave any objective evidence of such a condition, and I was inclined to attach no importance to their statements, opposed as they were to those of a great majority of the persons subjected to such influence, until the following occurrence convinced me that it was not unlikely that such statements were accurate. By a mistake as to the graduation of a hypodermatic syringe, I received fully one-fourth of a grain of homatropin in the subcutaneous tissue of the forearm.

Experiment.—This occurred at 8.45 P. M., supper had been eaten at 7 P. M., and my pulse was at the time 64 while sitting, and 72 when standing. Power of accommodation = 9 dioptrics, pupils, facing the full light of an argand burner, 3 mm. in diameter.

8.50 no change.

8.55 pulse 60 and stronger.

9.00 pulse 66, a very decided sense of intoxication.

9.03 pupils 4 mm. in diameter, facing the light as before.

9.05 pulse 68.

9.10 the power of accommodation is so impaired that it is impossible to see clearly anything within twelve inches of the eye. Convergence of the visual axes for any point within that distance is also impossible. There is also a sense of difficulty in making any coördinated ocular movements, although no diplopia is noticed. Pupils 4 mm. in diameter.

9.15 pulse 64, fuller than before taking the drug.

9.25 pulse 66, the same sense of intoxication, pupils, and power of accommodation and convergence as at 9.10.

9.35 and 9.45 pulse 66.

9.55 pulse 64, sense of intoxication and difficulty of accommodation and convergence slightly diminished.

10.05 pulse 60, pupils smaller.

10.15 pulse 62. Going out of doors there is some little difficulty in walking, a distinct tendency to drag the toes. Recovery now proceeded rapidly.

11.15 pulse 58, pupils, accommodation, and ocular movements, normal; a very slight headache.

The intoxication much resembled that produced by alcohol. It was peculiar in that there was a sense of great delay in the succession of ideas. There was no feeling of depression, rather of comfort, satisfaction, and indisposition to exertion.

The effects upon the pupil and accommodation were so transient, when compared with the same effects produced by a local application of the drug, and the dilatation of the pupil was so insignificant, as compared with the impairment of accommodation, that I cannot regard them as due to any local action of the drug reaching the eye through the circulation, but rather with the interference with the action of other ocular muscles, as due to the influence of the drug upon special parts of the central nervous system.

By other experiments I have found that the one-eighth of a grain of homatropin taken hypodermatically always causes some little intoxication. Once, when taken fasting, it seemed to cause about as much as the fourth of a grain, above mentioned, except that the influence it exerted over ocular movements was much less.

Case.	Dose.	Age.	Sex.	Normal P. R.	P. R. with H.	Decrease.
1	1/40 gr.	45	F.	90	80	10
2	1/30 "	31	"	82	71	11
3	1/20 "	49	"	82	82	0
4	1/20 "	16	M.	90	78	12
5	1/18 "	30	F.	70	55	15
6	1/16 "	20	"	84	70	14
7	1/16 "	24	"	66	60	6
8	1/16 "	27	"	65	56	9
9	1/15 "	19	"	90	78	12
10	1/15 "	23	"	94	76	18
11	1/15 "	21	"	78	70	8
12	1/15 "	15	"	72	72	0
13	1/15 "	20	"	81	75	6
14	1/15 "	22	"	76	76	0
15	1/12 "	19	M.	82	66	16
16	1/12 "	28	F.	72	64	8
17	1/12 "	14	"	76	76	0
18	1/12 "	16	"	66	63	3
19	1/12 "	20	M.	72	72	0
20	1/12 "	14	F.	96	94	2
21	1/12 "	27	"	90	84	6
22	1/12 "	14	M.	64	57	7
23	1/12 "	19	F.	72	65	7
24	1/12 "	11	M.	76	74	2
25	1/10 "	19	"	82	55	27
26	1/10 "	17	F.	72	58	14
27	1/10 "	29	M.	66	55	11
28	1/8 "	18	F.	85	68	17
29	1/8 "	17	M.	78	68	10
30	1/8 "	18	"	84	66	18
31	1/8 "	31	F.	63	64	—1
32	1/8 "	24	"	77	64	13

Influence upon the Circulation.—Ringer found, with reference to the action of the heart, that "homatropin slows the beats and renders them irregular in force and rhythm." In my experience a decrease in the pulse-rate is the most constant symptom produced. Next to this is an increase in the fulness and force of the radial pulse. In but three out of seventy cases was there any certain disturbance of rhythm. In two of these there was some irregularity of rhythm to start with, which became much more marked after the use of the drug. In the third, irregularity of action was noticed only after the employment of this drug. The increase in the force is noticeable, mainly within thirty to sixty minutes after the application of the homatropin.

Later there is a certain diminution of force, but that the pulsations become weaker than before the drug was taken I think is very uncommon. I could not satisfy myself that it occurred in any case. In one patient with mitral regurgitation, but fair circulation, homatropin seemed to cause a marked improvement in the strength of the pulse, which improvement lasted some hours. The preceding table shows the effect on pulse-rate produced by the use of the drug for its mydriatic effect. In the successive columns are found the estimated amount of the drug employed (by cumulative instillations), the ages, sex, normal pulse-rate under homatropin, and the difference produced by the drug.

The dose is expressed in fractions of a grain, the pulse-rate, of course, by the number of beats per minute. The observations were all made when the subject was in the sitting posture, free from excitement, and when time had elapsed since any considerable exertion. A cursory glance at the table shows that the slowing of the pulse is of pretty constant occurrence; yet it is probably even more constant than the table would indicate. In these cases it was not practicable to watch the pulse constantly, or at frequent intervals throughout the time that the influence of the drug was manifest. The normal pulse-rate was determined before the use of the drug and after recovery, but often the observations on the pulse-rate produced by the drug, were confined to the period at which the mydriatic influence was most complete, the patient being the remainder of the time from under observation. Now upon looking at the account of the experiment in which I received one-fourth of a grain, it well be noticed that the pulse first fell to sixty, then quickly rose to sixty-eight, after an hour fell again, and at two hours it was fifty-eight. A similar fall, rise, and second fall were noted after the use of one-eighth or one-tenth of a grain. Also in patients who had such amounts placed in the conjunctival sac, and who remained under observation until all effects of the drug had passed off. So it is likely, if not certain, that some of the patients referred to above, who seemed to have the pulse-rate but little if at all affected, were seen only during the period of such a secondary rise. It will also appear from the table, and from what has just been said, that the influence upon the pulse-rate is not proportional to the dose. While large doses slow the pulse both early and late, they do not slow it more than a dose so small as not to produce secondary rise. The secondary quickening of the pulse seems to be connected with the intoxication produced by the drug. This was pointed out to me by Dr. Thos. J. Mays, to whom my thanks are due for assistance in testing the action of the drug when applied hypodermatically.

Summary. — Homatropin applied in sufficient quantity by cumulative instillation is a perfectly reliable mydriatic in all cases. Locally, it causes hyperæmia, and affects nutrition, when in concentrated solution, so profoundly as to cause tissue death. In ordinary doses ($\frac{1}{200}$ to $\frac{1}{20}$ of a grain) it slows the pulse, makes it fuller and perhaps irregular in rhythm. In large doses ($\frac{1}{8}$ of a grain and upward) administered hypodermatically it causes intoxication.

The really valuable literature of the subject is comprised in the following papers:

Tweedy and Ringer. On the Mydriatic Properties of Homatropia or Oxtoluyltropein, with an account of its General Physiological Action. *Lancet*, 1880, vol. i. p. 795.

H. S. Schell. A New Mydriatic. *Philadelphia Medical Times*, October, 1880, pp. 7 and 47.

S. D. Risley. The Value of Homatropin Hydrobromate in Ophthalmic Practice. *American Journal of the Medical Sciences*, Jan. 1881, p. 113, and *Trans. American Ophthalmological Society*, Dec. 1881, p. 22.

C. A. Oliver. The Comparative Action of Hydrobromate of Homatropin, and of Sulphate of Atropia upon the Iris and Ciliary Muscle. *American Journal of the Medical Sciences*, July, 1881, p. 150.

H. Schaefer. Comparative Investigations into the Effects of Atropin, Duboisin, and Homatropin. *Archives of Ophthalmology*, Nov. 1881, p. 196.

HOSPITAL NOTES.

NOTES FROM THE VIENNA CLINICS.

(Reported by E. P. Davis, M.D.)

CARL BRAUN'S TREATMENT OF PUERPERAL SEPSIS.

Prof. Carl Braun has recently adopted a mode of treatment in cases of puerperal sepsis which has generally proved most efficient. As soon as a marked rise in temperature occurs the interior of the uterus is thoroughly curetted and disinfected by an antiseptic fluid, usually thymol. The curettte removes masses of decidua, blood-clots, and often pieces of membrane the presence of which would not be suspected, as the labor may have been normal. To be efficient, the operation must be done thoroughly yet gently, and, when so performed the temperature has often fallen several degrees and in a short time become normal, and a normal lying-in period ensued. An iodoform pencil or uterine suppository is often placed in the cervix after the operation, and antiseptic gauze in the vagina to absorb discharges.

ACTINOMYX IN THE PERITONEAL CAVITY.

During the past six weeks the clinic of Prof. Nothnagel has, as usual, presented much of interest.

The actinomyx is well known to American and European surgeons, but it has been, as yet, very rarely observed in the peritoneal cavity.

The case in question was that of a young man who had suffered from a circumscribed peritonitis, which had resulted in a fistula on the right side of the navel. The clear fluid and kernel-like masses which accompany actinomyx were present, and the microscope made the diagnosis easy and plain. The actinomyx had been undoubtedly taken with food, an intestinal obstruction had caused a perityphlitis—at least a circumscribed peritonitis—and a fistula resulted. The fistulous tract was operated on by Prof. Billroth.

ADDISON'S DISEASE.

Two interesting cases of Addison's disease were also presented, and tuberculosis of the suprarenal capsules adduced as the cause.

A SERIES OF CASES OF SPLENIC TUMOR.

A series of cases of splenic tumor were observed, leukynia in varying forms and carcinoma being the

causes of these tumors. There was also a series of cases of hæmatemesis, in which ulcer of the stomach and varices of the œsophagus (in a case of hypertrophic liver cirrhosis) were the pathological conditions present.

THE DIAGNOSIS OF PERNICIOUS OXALURIA.

The diagnosis of pernicious oxaluria was illustrated by a case in which the anchylostonum duodenalis was suspected but not found, as the cause of the disease.

CALOMEL AS A DIURETIC.

The use of calomel as a diuretic, which has already been tried in other clinics, has given, in some cases, interesting results here. It is efficacious only when the kidneys are healthy. In some cases of heart disease, in which as yet no interstitial changes had occurred, calomel produced free diuresis where other means had failed. It was given in rather large doses, and salivation rarely followed. No explanation is given of its mode of action.

MEDICAL PROGRESS.

SUGAR AND CORROSIVE SUBLIMATE AS A FIRST DRESSING IN WAR.—Dr. Heidenreich, in a paper published in the *Vrach* (Nos. 10 and 20), strongly recommends as a first dressing on the field of battle a mixture of corrosive sublimate with powdered sugar in the proportion of 1 to 1000. It is important that when this is prepared the sublimate should be evenly distributed, and this is easily effected by first dissolving the mercurial salt in a little spirit and then carefully rubbing up the sugar with it. The spirit ultimately evaporates and leaves a powdered mass of uniform composition. A little packet is supplied to each soldier containing a capsule in which are five grammes of the mixed powder—*i. e.*, $\frac{1}{200}$ of a gramme of sublimate—for the purpose of sprinkling on the wound; also a good-sized piece of gauze impregnated with one-third per cent. of its own weight of sublimate by means of Bergmann's process, which consists of dipping it in a solution containing 10 parts of sublimate to 500 of glycerine, 1000 of alcohol, and 1500 of water. Some hygroscopic wadding is also supplied, and this, when enclosed between two folds of the gauze, forms a dressing measuring 650 square centimetres, which is large enough to cover a somewhat extensive wound. The whole is enclosed by means of a layer of varnished paper and a triangle bandage, which is fastened with two safety pins. The author claims for this mixture of sugar and sublimate the advantage of being a particularly powerful antiseptic and quite innocuous. Sugar, he says, is the best substance for diluting the sublimate, being itself somewhat antiseptic. This dressing has also the additional advantage of being suitable for use wherever water may be procurable. This, of course, is not always the case, and where it is the source is frequently in a marsh or pool of anything but hygienic appearance. Under these circumstances, he advises that filtration should be resorted to, and consequently proposes that a kind of filter consisting of flannel impregnated with sublimate should be included in the packets supplied to the men. The whole contents of the packet weigh only seventy-five grammes, and are exceedingly portable and inexpensive.

PURE TEREBENE IN WINTER-COUGH.—J. HUTCHISON, M.D., of Shawlands, Glasgow, writes as follows to *The British Medical Journal*, of July 3, 1886: For some months past I have been using pure terebene in the treatment of winter-cough and bronchitis. I have before me notes of fifty-one cases so treated, and the conclusions at which I have arrived from my experience of the drug are as follows:

In cases where the trouble has not been of long standing, and the symptoms are slight cough, more especially at night; expectoration moderate in quantity and easily voided; no feeling of rawness in the chest, and little or no disturbance of the general health, I consider that pure terebene is almost to be ranked as a specific, so quickly is a cure effected.

In cases where there is emphysema, and the ailment has been present for some time, it may be for some years, with the following symptoms: cough very troublesome, and sometimes even violent; expectoration tough and adhesive, or it may be easy and copious; great shortness of breath and rawness of chest; sleep broken, and general health much disturbed, the beneficial effects of the medicine do not manifest themselves for some little time, and not unfrequently the dose has to be increased to ten, or even fifteen, drops. If, however, the drug be persevered with faithfully and regularly, the cases are few in which I have to record a failure. Altogether, I consider pure terebene one of the most valuable remedies at our command in the above class of cases.

In six cases of phthisis in which I prescribed the drug, the patients, in every instance but one, remarked that they were not in any way benefited, and requested the medicine to be changed. In catarrh, also, the results were not satisfactory.

My method of prescribing the drug was sometimes pure terebene alone—ten drops on sugar three times a day. In other cases I combined it with cod-liver oil, as follows: pure terebene, two drachms; cod-liver oil, to four ounces; two drachms three times daily. I cannot say, however, that the effects produced were any better in the one case than the other. If there were any difference, pure terebene alone had the preference.

Some of the patients complained that the medicine made them sick; others that their appetite was improved by it. In a few of the cases it appeared to have a laxative effect. In a very large proportion drowsiness was complained of; while in some giddiness, or even a slight transient intoxication, was observed.

TESTS FOR ALBUMEN IN URINE.—The "Albumen Test Committee" recently presented to the Clinical Society of London a paper on the work accomplished by them, which, according to custom, was received without discussion. In it, the Committee briefly reviewed the various modes of testing for urinary albumen, etc., in common use, and compared in turn Dr. Oliver's test-papers, Dr. Johnson's picric acid method, the potassio-mercuric iodide and acid, Dr. Pavy's pellets, the acid brine method, picric acid and brine, the acetic acid, and the nitric acid methods. After careful consideration and experiment, the Committee arrived at the conclusion that the papers of Dr. Oliver possessed advantages in the way of portability and delicacy of reaction over the other similar preparations; but,

apart from the question of easy carriage and compactness, they described nitric acid as being most reliable and delicate. All the methods, however, were said to be respectively useful for the determination of different proteids in the urine.

Tonsillar Orchitis and Ovaritis.—In an elaborate study, thus entitled, in the *Archives Générales de Médecine*, for May and June, 1886, M. Joal presents the following conclusions:

1. Orchitis and ovaritis should be classed among the complications of acute tonsillitis, either superficial or deep.

2. These genital manifestations, analogous to those which appear in typhoid fever and in *fievre ourleuse*, should be attributed to the infectious nature of the tonsillar inflammation.

3. The orchitis and ovaritis are not due to any of the alleged physiological nexuses, imagined by certain observers as existing between the generative organs and the tonsils.

Hemirheumatism.—At a recent meeting of the Academy of Medicine of Paris there was presented, for Dr. Cazalis, a note on the hemilateral predominance of the manifestations of chronic rheumatism. According to the author, a tendency to unilateral rheumatism is noted in two-thirds of such cases, the right side being most frequently affected. When pulmonary congestions, or bronchitis of arthritic nature appear in these patients, they are most often located on the side on which the rheumatism predominates. On this side, also, are most frequently found deviation and deformity of the great toe. If hemicrania be added to the various modalities of arthritism, there will be found still greater ground for admitting that the central system exerts a great influence in the localization of chronic manifestations.—*Archives Générales de Médecine*, June, 1886.

Epidemic Cerebro-spinal Meningitis.—In two consecutive numbers of the *Eira*, Dr. A. P. Silverskiold gives an interesting account of his observations on fifty-eight cases of cerebro-spinal meningitis during the Gothenburg epidemic of 1883. He adds a table of the relative frequency of these epidemics in different countries, which shows that Switzerland has had the greatest number, namely, fifty-eight; North America, sixteen; Sweden, seven; England and Italy, five each; Denmark, four; Spain and the Netherlands, only one each. The disease appears to rage during the winter and spring months. The Gothenburg epidemic commenced in January, reached its maximum in February and March, its minimum being in May and June. The disease commenced with a severe rigor, lasting from half an hour to six hours, followed by intense heat and headache. The rigors recurred at irregular intervals, and did not resemble those of pure ague. Unconsciousness and delirium usually set in quickly, in some cases coma, not always terminating fatally, even when the patient was perfectly livid. The temperature was not raised to any very abnormal extent, and some cases ended fatally with a temperature of only 40° C. (104° F.). All sorts of nervous symptoms were met with as complications, the prominent features being intense headache and pain in the back, shivering, convulsions, and delirium. Sometimes hydrocephalus occurred. During convalescence there were great changes in temperature which sometimes rose to 40° C., and sometimes fell to normal. Difficulty of swallowing and great distaste to food lasted during the whole period. The pulse was as irregular as the temperature; in most cases there was a slight increase in frequency. Dr. Silverskiöld tried a large number of drugs, without any satisfactory result. Salicine and quinine had scarcely any effect. Cold on the head and along the spine lessened the pain, but the most serviceable means were local bleeding and opiates. He found large doses of morphine most efficient in giving sleep when there were delirium and convulsions. Chloral was less frequently used, and opium was wholly avoided. When the most serious symptoms had abated, Dr. Silverskiöld used bromide of potassium to promote reabsorption. He is of opinion that the disease arises from malaria, and states at some length the ground for his belief, founded on observation of the physical features of the districts around Gothenburg, which are low and marshy. During an east wind these marshes are exposed, and exhale malarial vapors. In 1883, this was especially the case.—*Brit. Med. Journ.*, July 3, 1886.

Chemical Constitution and Physiological Action of Drugs.—At a recent meeting of the Cambridge Physiological Society Dr. J. Blake made some remarks on the discordant results that had been arrived at by different observers in investigating the connection between chemical constitution and physiological action. Brunton and Cash, in a paper published in the last volume of the *Trans. of the R. S.*, had concluded that no such connection could be shown; whilst Richet, Ringer, and Bothrin had arrived at the conclusion that such a connection existed when the chemical constitution of the elements was considered in relation to Mendelejeff's law. He (Dr. Blake) had published forty-five years ago, in a paper read before the Royal Society, what he considered was the relation between chemical constitution and physiological action, viz., that substances in the same isomorphous group exert analogous physiological action when introduced directly into the veins or arteries, and a larger number of experiments made with compounds of more than forty of the elements, had, he believed, fully established the truth of the connection of physiological action with isomorphism. The experiments which were performed by Brunton and Cash were not calculated to throw any light on the subject, as the reagents they employed were principally substances of the chemical constitution of which little is known, and the method they used, that of subcutaneous injection, introduces so many unknown factors that the results are comparatively worthless. By employing the same method Richet considered not only that he had proved the connection between physiological action and chemical constitution, but that he could even calculate a *toxicological constant* as a function of the atomic weight. Both in these experiments of Richet and in those of Bothrin their authors have been led into error by mistaking the arrest of the circulation caused by obstruction in the pulmonary arteries, as is the case with the salts of lithium, rubidium, and cæsium, with that caused by the paralysis of the heart that follows the injection of the salts of potash into the veins.

In answer to a question, Dr. Blake observed that isomorphism, although founded principally on the form

assumed by the crystalline compounds of an element, yet connoted a great deal more than mere resemblance in crystalline form, isomorphous elements resembling each other in many of their more marked chemical functions.—*The Journal of Physiology*, June, 1886.

Pulmonary Resection and Nephrectomy.—At a recent meeting of the *Société de Chirurgie*, M. Demons, of Bordeaux, narrated the case of an individual in whom a stab wound in the inferior portion of the thorax had determined a pulmonary hernia and a wound of the kidney. The protruding portion of the lung was resected, but several days later a fluid, shown by chemical analysis to be urine, was observed to pass out from the uncicatrized wound. In view of this urinary fistula, M. Demons performed nephrectomy, resulting in perfect cure.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, June 11, 1866.

Aphasia after Injury to the Head, the Faculty of Counting being Retained.—Dr. Volland, Davos-Dörfli (*Münchener medicinische Wochenschrift*, January 26, 1886) records the following case: A youth, aged fifteen, suffered a fall down a staircase into a cellar, where he was found in a state of insensibility. The actual height that he had fallen was not known, as no one else was present at the time of the accident. A moderately sized and sharp punctured wound was found on the right parietal bone, near the surface; the periosteum was detached to the extent of a line. The bone itself appeared uninjured, and no bleeding from the nose or ears occurred. The injury was treated as an open wound. The patient continued insensible the whole of the following day, and could not be made to take food. On the 16th he took nourishment and came to himself. No paralysis of extremities or of the face was present, but his friends stated that, although he understood what was said to him, he could make no reply. The only word he could utter was *Anna*, slowly articulated, in reply to his friends, and especially when he saw any object that pleased him; it was out of his power, by any effort, to get out any other word. The trial of writing was made, but it was exactly the same as with his speaking: the word *Anna* was illegibly scribbled. On the following day it was said that the patient could count, and at my request he, without hesitation, counted to 100. Furthermore, he could write down and count correctly any sum that he had previously learnt. For fourteen days that he lay ill, the difficulty of speech remained. As he recovered and the wound healed, he concurrently and gradually recovered speech and facility of writing. Six years afterward, when he had attained the age for military service, he still experienced difficulty of speech, and was subject to vertigo; had a sense of pressure on his head distinct from headache, and was the subject of ptosis. He was able, however, to follow his work as an agricultural laborer. The point of interest in this case, Dr. Volland observes, is that it seems to point to a centre for counting and expression of figures.—*Provincial Medical Journal*, July 1, 1886.

Treatment of Stammering.—In the *Bulletin de l'Academie Royale de Medicine de Belgique* for January, 1886, Dr. Chervin, of Paris, has an interesting article on the etiology and treatment of stammering. His treatment lasts only three weeks.

The *first week* is devoted to the study of the elements of speech, and to the methodic exercise of respiration, The respiratory rhythm must be established at the outset, and the patient must be taught to breathe and utilize his breath with a view to speaking. There are certain exercises of respiration, in which he teaches the subject how to inspire and how to expire, these acts being preceded by a moment of repose, during which the mouth is kept closed. Expiration is at first utilized in pronouncing the separate sounds, then combined sounds. The vowels are first chosen in the exercises, as they are easier to pronounce than the consonants. These latter are taken up and each carefully studied. When the elements of speech have been perfectly studied, and the difficulties arising in connection with individual consonants have been overcome by special gymnastic exercises, the subject passes to the study of syllables, then words, and, finally, sentences and paragraphs. During the first week the stammerer should abruptly break with his old manner of speaking. Dr. Chervin considers as a powerful aid in this work complete, absolute silence, which he imposes upon his patients during the first week. It is evident that as long as the principles of the method are not sufficiently known to the pupil, and he is not completely broken into their practice, he will not apply them in conversation. This rigorous silence has another effect. It quiets the pupil's mind, and makes him forget all about his stammering.

The *second week* the pupil regains freedom to speak. The time has arrived for him to apply the principles he has learned. Henceforward he can speak, because he no longer stammers; he restrains himself, and slowly puts into practice the instructions concerning respiration, the regular movements of the tongue and lips, etc.

It is always a surprise to Chervin to see the contortions, the spasms, the hesitations, the most marked repetitions, disappear under this method as if by enchantment. A clear, precise utterance succeeds the former stuttering; speaking will become natural, agreeable and harmonious, when the extreme methodic slowness imposed during the second week will have given way to an easier gait which is to be practised during the last week of the treatment.

The *third week* is employed in fixing the new habit of speaking with care and method, and in relieving the delivery of all tendency to choking. At the same time a careful study is made of the inflections of the voice.

In fine, Chervin replaces the very marked syllabation of the first days by a steady but slightly accentuated delivery, in which all the syllables are pronounced without precipitation, and, above all, without jerking.

During this last week, Chervin counsels his pupils to imitate persons who speak well; whose delivery, without being of pedantic slowness, is calm and deliberate; in whose voice the inflections are natural and varied; whose sentences, well modelled, both as to breathing and meaning, are easy to understand and pleasant to hear.

But at the expiration of the three weeks it must not be supposed that the pupil is entirely cured; he is like a convalescent, who has still need of care and precautions in order to achieve a complete restoration. Special instructions must be given to him, whereby he may be able to continue the application of the method, and thus indelibly fix the habit of speaking properly.—*New Orleans Medical and Surgical Journal*, July, 1886.

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SATURDAY, JULY 24, 1886.

THE TREATMENT OF DIVIDED TENDONS.

FOR the treatment of tendons ruptured subcutaneously, the majority of the text-books on surgery recommend simple attempts at approximation of the separated ends by position, and, in the case of an open wound, suturing the separated ends. The former method has been very often adopted, with moderate success, and the latter has been used often enough, and successfully enough, to make it a well-established plan of procedure. In 1882, however, HEUCK reported, in the *Centralblatt für Chirurgie*, a plan adopted with success by Czerny, which may be regarded as an improvement upon the methods just mentioned. In this case, Czerny, finding it impossible to bring together the ends of a subcutaneously ruptured extensor of the thumb, two weeks after the accident, did a sort of flap operation, which resulted in restoration of the power of extension of the thumb. Whether this was effected by direct union of the divided ends of the tendon, or by means of their union to the cicatrix in the skin, it is not easy to say.

Still another method of overcoming the difficulty presented by wide separation of the ends of a divided or ruptured tendon is what the French have called "union by anastomosis." This consists in grafting the peripheral end of the injured tendon to the continuity of a neighboring sound tendon. The operation has been done only a few times; but it has proved so successful as to merit attention. The first account of its performance is somewhat apocryphal. Velpeau is said by Tillaux to have mentioned two such operations done by Missa and Champion. The earliest authentic case is said by Denonvilliers, in the *Bull. et Mém. de l'Acad. de Chirurgie*, for 1875, to have been done in 1873, by Polaillon, who sutured the peripheral ends of the divided extensor tendons of the three middle fingers to the corresponding tendons of the thumb and little finger. In 1875, Tillaux reported to the Academie de Chirurgie a successful operation, done in 1874, in which, two months after the division by laceration of the extensor tendons of the little and ring fingers, he cut down upon them and sutured their peripheral ends to the extensor tendon of the middle finger. In 1876, Duplay reported to the same society a case in which he had successfully united the subcutaneously ruptured tendon of the long extensor of the thumb to the tendon of the extensor carpi radialis longior, by inserting the peripheral end of the former into a buttonhole made in the latter, and fixing it there with a single wire suture. At the same time, Tillaux reported that he had just done an exactly similar operation.

The most recent writer on this subject is HAGER, who, in the *Berliner klin. Wochenschrift*, for May 31, 1886, describes an operation for the relief of what he calls, after Volkmann, a spontaneous rupture of the tendon of the long extensor of the thumb. The operation was done in 1885, and consisted in cutting down upon the tendon seventeen days after the rupture occurred, and attempting to find the divided ends. Failing to discover the upper end, because of its retraction, he cut the lower end off obliquely, and sutured it with catgut to the tendon of the extensor indicis, after having opened the sheath of the latter and freshened a suitable surface by scraping off the epithelium. Under antiseptic treatment the wound healed by first intention, and in two months the power of extending the thumb was almost restored, while in six months the movements of the hand were nearly normal, the thumb moving freely even when the fingers were flexed into the palm so as to make a fist.

This admirable result confirms the previous experiences which we have mentioned, and encourages the hope that in this method we have a means of repairing an otherwise hopeless injury.

THE USE OF THE STOMACH PUMP IN INTESTINAL OBSTRUCTION.

A RECENT paper by CAHN, in the *Berliner klinische Wochenschrift*, for May 31, 1886, gives an interesting account of a case in which a large sarcoma of the retroperitoneal glands produced symptoms which might easily have been judged to be those of cancerous stricture of the pylorus. In fact, the diagnosis of carcinoma was made, but the position of the tumor was believed to be below the pyloric orifice and beyond the opening of the common bile-duct into the duodenum. The correctness of this opinion as to its location was demonstrated at the autopsy,

and it is of peculiar interest to note the fact upon which the opinion was based during life, viz., that when the stomach was washed out by means of the tube, large quantities of bile were evacuated, either pure, after the contents of the stomach were removed, or mixed with intestinal contents.

Leichtenstern has called attention to the significance of the persistent admixture of bile with the vomited material in cases of suspected stenosis of the pyloric orifice, but in the case reported by Cahn there was no bilious vomiting, it was only after the stomach had been cleared of its contents by the tube that bile was able to enter it at all, and then it was removed by the tube. Cahn explains the absence of bile in the stomach before the use of the tube by the fact that the presence of undigested material in the stomach acts as an irritant and causes unremitting vermicular movements, with more or less tonic contraction of the circular fibres at the pyloric extremity, and that washing out the stomach reduces the intragastric pressure, and removes the cause of the spasm which prevented the passage of bile or other contents of the duodenum into the stomach. Cahn's observations suggested to him that washing out the stomach may prove useful not only in locating the seat of an obstruction in the digestive tract, but also in furnishing relief for some of the distress to which such an obstruction may give.

A practical application of these principles was observed by Kussmaul in a case of intestinal obstruction treated by washing out the stomach. This operation relieved the patient of large quantities of fecal matter which had found their way into the stomach, and this relief seems to have led to some change in the state of excitation of the muscular coat of the bowel, so that enemata, which had been unsuccessfully used before, now brought away masses of feces, and the patient recovered. In this case, it is proper to remark, the symptoms reported indicate that the condition was probably due to enteritis and not to intussusception.

Cahn also records two cases, occurring in the practice of Lücke, in which the symptoms of ileus followed the operation of gastroenterostomy, and were relieved by washing out the stomach; and he points out the advantage of this simple means of overcoming a dangerous complication of this operation.

The opinions of Cahn, as to the service which washing out the stomach may render, are deserving of careful consideration and their application to practice may develop important results in regard to the diagnosis and treatment of obstructions in the digestive tract.

AORTIC ANEURISM TREATED BY WIRE AND GALVANISM.

In The Medical News for December 12, 1885, and March 27, 1886, we made some remarks upon the treatment of aneurisms of the aorta by the introduction of filiform materials. We cited a case operated upon by Loreta, in 1884, which must be considered as a success so far as the consolidation and diminution of the tumor are concerned, and another treated by Cayley, Hulke, and Gould, in 1885, in which the result was at least temporarily successful. And now Barwell reports in the *Lancet* for June 5, 1886, a case of aneurism of the arch of the aorta involving its lower aspect, in which he ingeniously combined the introduction of filiform material and the application of galvanism. He introduced, through an ivory stylet, ten feet of the finest steel wire, which had previously been coiled on a wooden cylinder half an inch in diameter. The end of the wire was connected with the positive pole of a battery. The negative pole was applied to the upper dorsal region of the patient, with a piece of amadou about a foot square, thoroughly saturated with hot water, between the electrode and the skin. By means of a galvanometer the strength of the current was measured, and found to be not more than four milliampères. This was then brought up to nine or ten milliampères, and passed continuously through the circuit for an hour and ten minutes. At the end of twelve hours the pulsation in the tumor seemed to be more distant, and the tumor much harder. Signs of bronchial obstruction, which had been very distressing before, were lessened. On the fourth day after the operation a new tumor was found on the other side of the sternum, and four days later the patient died from rupture of the second sac, two and a half pounds of blood being found in the right pleural cavity at the autopsy. The main aneurismal sac contained large wide coils of wire, each of which was surrounded by a "pretty thick" coat of firm, colorless fibrin, strongly adherent to it, and wherever the metal was in contact with, or within a moderate distance of the wall, the wire was bound to the sac.

In studying this case we must admire the ingenuity of the operator, and share his opinion that there appears to be a decided theoretical advantage in attempting to cure aneurism by combining the coagulating power of electricity with that of foreign substances introduced into the blood current. We think, however, that the appearances we have cited, as found in the sac of the aneurism at the autopsy, do not indicate that the use of galvanism in conjunction with the introduction of fine wire is, in any sense, to be preferred to the use of filiform material alone, although the experiment is deserving of further trial. We would, however, suggest that the quantity of wire introduced into the aneurismal sac in this case was too small. Mr. Hulke introduced forty feet of wire in his case, and Mr. Gould afterward introduced nearly thirty-five feet of wire in the same case.

EXERCISE AND OVER-EXERCISE.

In the river at New London, lately, occurred a series of boat races between representatives of four universities. The sympathetic and more or less excited audience saw numerous perspiring youths tugging manfully at the oar, and heard loud college cheers echoed along either shore, and those of its members who were not too old or too *blasé* felt something of the enthusiasm which urged on the long, narrow "shells" toward the finish. Men who had once held an oar, renewed, for a moment, in that struggle, similar contests of bygone days, when they had helped to pull their "'varsity" to the fore. But who, of all the spectators, old or young, appreciated what this contest meant to the participants? The on-looker perceived the heat of a day in June. He beheld a pleasant river, whose green banks were dotted with varying bits and splashes of color. He saw a wild, rushing "burst of speed," and heard ringing cheers growing louder as the boats flashed up to the goal. To each member of the crews, however, those few moments of that summer afternoon were the climax of months of hard, steady work. Their training for that race meant long weeks of self-control, and it meant steady, systematic, mechanical exertion continued day after day; yet all this time their college duties must not be neglected. Then comes the race! "How easily they row! It does not seem like work," one hears from a looker-on. But they *are* working. Each man in the boats has forgotten, for the time, that he is an anatomical collection. He has forgotten that within him is a heart and lungs. He thinks not of the proper balance between cell degeneration and cell growth. He has become a human will, which is to prove itself a hard taskmaster over its servant members.

Woe to any one of them if his strength be not sufficient. What if the heart, first hypertrophied and then strained, by hard exercise, is just on the border of dilatation? The brave will drives on in spite of the pumping, spasmodic, irregularly bounding organ, until the finish line be passed and the man, perhaps, falls unconscious over the handle of the oar which he has so bravely grasped. Will Da Costa's "irritable heart" account for his symptoms of the following month, or are they the beginnings of more serious trouble? There is the same forgetfulness of self in all athletic contests, a firm demand for more power than the body can supply. Hence it becomes extremely important to select only picked men, to watch daily the effects of judicious training upon them, to drop out every case in which signs of weakness are indicated, and, at last, to find the few "elect" who can bear the burden and heat of the day.

Are college crews or other contestants thus selected? In a few instances there are judicious and competent men in charge of their physical training. In many cases this is left to a professional oarsman or general athlete, assisted by a committee of the college students or of the club. They pick out the most "likely" men available. Occasionally these are examined as to chest condition—more frequently they are not. Even when examined, there is seldom any careful inspection of the effects which daily exercise is producing upon these candidates for athletic honors. It is by such oversight that the men slip into crews who "pull their hearts out in the race," and who break down, even years afterward, from any light exertion.

Athletic contests are to be encouraged. They cultivate all the manly qualities, and tend to produce a sound mind as well as a sound body. To attain this worthy result, however, there is need for intelligent medical direction, and without this there is every probability that they may prove most baneful both in their immediate and remote consequences.

REVIEWS.

The Surgical Diseases of Children. By Edmund Owen, M.B., F.R.C.S., Surgeon to the Hospital for Sick Children, Great Ormond Street, London. 12mo. pp. 585, with 4 chromo-lithographic plates and 85 engravings. Philadelphia: Lea Brothers & Co., 1886.

This is an admirable treatise, well suited to form one in a series of handy manuals for ready reference. The arrangement is all that can be desired, and the wide field of children's diseases ordinarily regarded as coming within the province of the surgeon is gone over with more or less thoroughness. Necessarily some subjects are treated with brevity, but others are gone into with considerable fulness. Nor has the work been hastily prepared, for almost every page bears testimony to careful research, and the compilation of recently proposed plans of treatment is full. There are many points upon which we might dwell in detail, but we will confine ourselves to mentioning the subject of hip-joint disease, which is treated at considerable length in a separate chapter. Mr. Owen holds that, while the majority of cases have an origin in early injury, many cases occur in which no such cause can be made out. The method of making a diagnosis is detailed with care, and we are pleased to observe, both in this connection and elsewhere, the stress Mr. Owen lays upon gentleness as an aid to arriving at a correct and accurate conclusion in the diseases of children. Not that gentleness should ever be neglected in any case, but Mr. Owen points out that their susceptibility and timidity make it especially important in children. The extreme importance of rest in the treatment of these cases, especially in the early stage, is dwelt upon, and the value of extension by a weight is recognized, but Mr. Owen is an enthusiastic advocate of Thomas's splint, properly appreciating the value of the fresh air which its application will enable the patient to get. Nor would we say anything against that splint or the similar one devised by Dr. Agnew, but we have never yet seen the apparatus which will secure as perfect quietude, while the patient

is going about, as can be obtained in bed. We have not found it necessary to keep up perfect extension of the joint by compelling the patient to be perfectly still, as Mr. Owen suggests, but obtain very satisfactory results when the child is allowed to sit up partially and amuse himself with toys and books on a bed-table. When cases are seen early and thus treated, we have seen no occasion to resort to any other means of treatment. Of course, tonics and fresh air, obtained by moving the bed out-of-doors in suitable weather, are invaluable adjuvants. Mr. Owen has incorporated in his book sections on embryology bearing upon the various topics in hand. The illustrations, if not very fine, make the author's meaning quite clear, and we have no hesitation in commending the volume as valuable and trustworthy, containing, as it does, a vast amount of information in very small compass.

SOCIETY PROCEEDINGS.

CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, May 28, 1886.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

ABDOMINAL SECTION FOR PELVIC ABSCESS.

The Secretary read the following letter:

7, THE CRESCENT, BIRMINGHAM,
April 14, 1886.

If not too late, I should like to take part in the discussion which was entered into at the Gynecological Society of your city upon abdominal section for pelvic abscess. My remarks, of course, are discursive and not very conclusive, because they are based upon only a very few points to which I want to draw attention.

The first is this: I object to the use of words ending in *otomy*, to mean various operations all of which are practically identical in character but different in detail and not one of which can have any exclusive or absolute identification by any particular name. Thus Professor Christian Fenger, in the discussion, objects to the use of the word laparotomy, and he introduces another which is perfectly new to me and I hope it will never be used again: it is *oncotomy*. Dr. Fenger objects to laparotomy in a sense where I certainly have no objections, and his very objections only show how utterly absurd all these words are. There really ought not to be any such word as laparotomy in existence, because the signification of its derivatives in the use of the people who spoke the language is such that it could not by any human ingenuity be applied to any modern surgical proceeding. Now the words "abdominal section" are sufficiently English to be understood by everybody, and they are sufficiently distinctive to enable us to understand at once that when they are used the peritoneum is opened. I therefore wish, through your powerful society, to protest against the use of all these stupid words of Greek formation. I wish also to protest against the absurd distinctions drawn by Sänger, which are quoted by Dr. Fenger on the subject of pelvic abscess.

He distinguishes six kinds of salpingitis:

1. *Septic*, the existence of which I entirely dispute as a specific ailment.

2. *Tuberculous*, which again I deny, except that it has an existence as the third and contracting stage of pyosalpinx.

3. *Syphilitic*, not one particle of evidence of this have I ever seen.

4. *Actinomycotic*, which is an equally ridiculous subdivision, based on mere theory, not on fact.

5. *Gonorrhœal*, to which the great bulk of the cases belong.

6. *A mixed form.* Instead of this sixth, or mixed form, I would say that there are a great many cases to which we cannot attribute any actual origin, a number of cases occurring in virgins where the existence of gonorrhœa would be an impossibility, and where there was no puerperal mischief.

Dr. Fenger's paper has always seemed to me to be an illustration of the German savant evolving the descriptions of the camel out of his own consciousness. My descriptions, on the other hand, are taken from some hundreds of cases upon which I have performed operations and the history of which I know as completely as it is possible to obtain information.

In Dr. Reeves Jackson's paper there are two points to which I want specially to draw attention, and they are not of much importance because they are chiefly questions personal to myself.

The first is a passage in which it is said "Lawson Tait, of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible contingencies of pelvic inflammations by attacking the disease at its original seat; Lawson Tait removed the suppurating uterine appendages, Martin operated for suppurating periuterine hæmatocele. Tait operated for suppurating hæmatoma of the right Fallopian tube in 1878, and he removed both tubes for pyosalpinx, and an ovary for abscess in 1885. In 1885 Martin performed laparotomy in three cases of intraperitoneal hæmatoma, namely, retrouterine hæmatocele." Now accuracy of date in a matter of this kind is rather important for one's own personal reputation, and Professor Reeves Jackson has underestimated my claim for priority by at least seven years. The first operation which I performed for suppuration of the uterine appendages was done on the 11th of February, 1872, and there will be found in the last edition of my book on *Diseases of the Ovaries*, twenty-two cases which I had performed up to the middle of August, 1882, without a death. Since then I have operated upon hundreds. The first case of suppurating hæmatocele which I operated upon is published in detail in the same book; it was in February, 1879, and since then I have operated upon thirty-two cases without a death, and all have been completely cured. It will thus be seen that in none of these matters have the German surgeons approached English surgery as rivals in priority. They have been mere followers in every particular, and I regret to say their following has been practised without that recognition to which our priority gives us every just claim.

The second point is that in which I find Professor Byford speaking in terms of my own work which no words of mine can sufficiently recognize or express my appreciation of, and here certainly his words of caution are worthy of a little note. What I fear—in fact, what I already feel—is that the remarkable success which I have had, and of which Professor Byford speaks in such

strong terms, is really leading astray those whose opportunities have not been as my own, into the belief that the work is easy, simple, easily acquired, and free from risk. It is not so, and unless those who practise it choose to follow me in the rigid precautions and immense care which I give, not only to the mere performance of the operation, but to the surroundings of my patients and to every detail in connection with them, they will not obtain, they must not expect, the success which I have had. I have said that I fear—in fact, I already feel—that this success of mine is leading people astray, and I want to urge in the name of humanity, as well for the sake of the art we practise, that there should be less of the indiscriminate rushing into this kind of work which has been already deplored on both sides of the Atlantic. I am, etc.,

Lawson Tait.

Dr. Christian Fenger said that the letter of Mr. Lawson Tait relates in a number of points to his paper on "Laparotomy for Periuterine Abscess" as well as to some remarks which he made before the Society in a previous discussion. (See The Medical News for March 27, 1886.) He, therefore, begged the Fellows of the Society to bear with him while he took up a little of their time in answering Mr. Tait's letter. When discussing Professor A. Reeves Jackson's paper, he objected to calling the operation in question a laparotomy. According to the Professor's description of the case, he had opened an abscess which was adherent to the anterior abdominal wall. He had consequently simply performed an oncotomy, an operation which, notwithstanding the division of the abdominal wall, does not differ materially from opening a deep-seated abscess in any other region of the body, as *e. g.* in an extremity. Whether opening the abdominal or peritoneal cavity be termed laparotomy or abdominal section or *Bauch-Schnitt*, is, of course, a matter of indifference, provided only that the meaning of the word be agreed upon. There is but one way of getting at the signification of a medical term, and that is by learning in what sense the term is employed in the medical literature of the different nations.

He must again maintain that laparotomy is not merely section of the abdominal parietes, but that the word implies the opening of the general peritoneal cavity with a view to perform some operation within that cavity. (See Linhardt's *Operationslehre*, Wien, 1862, p. 705; and Eulenburg, *Realencyclopædie*, Bd. ii. S. 37.) French authors occasionally use the word gastrotomy instead of laparotomy. Recently the operation has been called peritonotomy, which, on account of its correctness, should perhaps be preferred to the other terms.

It is of importance to distinguish between a laparotomy and the evacuation of a limited abscess by simply incising the abdominal wall. The two operations differ widely as to their consequent dangers. Where the general peritoneal cavity is opened, a well-known series of precautionary measures is required before and during the operation, in order to protect the patient from general septic peritonitis. Where an incision through the abdominal parietes leads directly into a limited abscess cavity, the precautionary measures essential to laparotomy may be dispensed with; the general peritoneal cavity is not opened, and there is no fear of general peritonitis. In the latter operation the peritoneum is not seen or not noticed, the incision wound is left open, and the limited cavity washed out and drained. In every country, medical authors hold these two operations apart. Opening a perityphlitic abscess, an adherent hepatic abscess or a parametritic abscess above Poupart's ligament is never spoken of as a laparotomy. Whenever we hear or read of a man having performed a series of laparotomies, we naturally suppose that he is experienced in performing intraperitoneal operations. Now, many a surgeon has opened a large number of intra-abdominal abscesses, and has never seen the peritoneal cavity. It is evidently important properly to limit the meaning of the term laparotomy; else we may misunderstand the description of a given case, and the statistics of laparotomies will necessarily be rendered valueless.

The next point Mr. Lawson Tait remarks upon is the question of priority of operating for pelvic hæmatocele.

By the mistake of Mr. Tait, part of what he said in the discussion of Professor Jackson's paper is ascribed to the paper itself. He was thus quoted in Mr. Tait's letter:

"Lawson Tait, of Birmingham, and Martin, of Berlin, were the first who attempted to prevent the terrible consequences of pelvic inflammations by attacking the disease at its original seat. Lawson Tait removed the suppurating uterine appendices; Martin operated for suppurating periuterine hæmatocele."

In the discussion he stated the dates at which Tait and Martin performed their respective operations. By a typographical error the dates appeared wrong in some of the copies of the transactions of the Society. 1885, instead of 1872, was given as the date of Tait's first laparotomy for abscess of the ovary; and 1885, instead of 1876, as that of Martin's first laparotomy for extraperitoneal hæmatocele. Considering his remarks as a whole, and examining his references to the literature on the subject, a careful reader would not have failed to recognize in the wrongly printed dates a typographical error.

Lawson Tait performed his first laparotomy for extraperitoneal hæmatocele in February, 1879. (See *Diseases of the Ovaries*, 4th edition. London, 1883, p. 346, and Tait's letter.) Martin performed the same operation for the first time in 1877, and a second time on the 31st of January, 1879. (See *Das Extraperitoneale Periuterine Hæmatom. Zeitschrift für Geburtshülfe und Gynäcologie*, 1882, VIII. Bd., Heft ii., S. 476.)

It will thus be seen that his statements concerning priority were correct. In the discussion of Professor Jackson's paper, he quoted Sänger's classification of pelvic inflammations. In criticising it, Mr. Lawson Tait speaks of "absurd distinctions." He wished to repeat that he regards Sänger's classification as complete and correct, and in accordance with the laws governing inflammatory processes in all organs of the body.

Dr. Charles T. Parkes then read a paper on

Uterine Fibroids Treated by the Fluid Extract of Ergot.

He related the history of four cases of uterine tumor, treated by the internal administration of Squibb's fluid extract of ergot. They all resulted in recovery by expulsion of the growth.

He found no insurmountable difficulty in giving the medicine, although when given for a prolonged period it creates nausea and disgust in some. This was counteracted, and the pain following its use controlled by combining it with morphine. It seemed to him preferable to the hypodermatic use, the latter being locally painful and often producing abscess; besides, it is not followed by any better result. In two of the cases treated by ergot, the tumor, when thrown off, proved to be true uterine fibroma — dense and hard, white and glistening when cut open, consisting of simple fibrous tissue. The other two following the action of ergot were soft myomata — pultaceous and semi-elastic—consisting mostly of connective tissue, confirming the diagnosis made. All four of these were evidently submucous tumors, or so slightly interstitial as to be practically covered only by mucous membrane.

Case I.—Mrs. S., American, forty-three years old, widow, three children, no miscarriages, menstruated first when sixteen years old. Never had any noticeable trouble with menstruation until three years previous to first examination; during these years she had suffered with irregular profuse hemorrhages which were now continuous, accompanied with exacerbations on the slightest exertion. His first examination was made February 20, 1876, at which time she presented the most perfect example of transparent flesh that he had ever seen. A large, finely formed woman, her flesh looked like alabaster, apparently destitute of blood. The legs were œdematous, the heart beat feeble and rapid, and the slightest exertion was followed by extreme palpitation and the most fearful feelings of suffocation. Her answer as to what she had done for her trouble was that she had taken "quarts of medicine." Vaginal examination revealed an enlarged uterus and patulus os, from which blood was rather freely oozing. The sound entered the uterus about five inches, the handle being deviated forward and to the left side. A diagnosis of submucous uterine fibroid was made.

The treatment adopted was the administration of strychnia and iron, together with wine and good diet for the general condition, and one-half drachm doses of Squibb's fluid extract of ergot every six hours, either to expel or kill the growth. Locally, to stay the hemorrhage, a small tampon of pulverized alum was applied to the *os uteri* and held in position by ordinary cotton tampons.

The first forty-eight hours' use of the ergot produced quite severe uterine pains, so acute that the patient, in her weakened condition, said they were unbearable. At this visit Professor T. D. Fitch saw her in consultation. The tampon of alum was removed, and Dr. Fitch's examination confirmed the diagnosis made, and advised the continuation of the treatment. As the bleeding had been entirely controlled by the tamponade, it was left out. The ergot was continued as before, and a sufficient dosage of morphine ordered, to make the pains bearable if they persisted. No further use of the tampon was required, the uterine contractions never ceased while the ergot was administered. On the sixth day of its use a foul-smelling serous discharge came on *per vaginam*, accompanied with slight general chilliness and a temperature of 102° F. The patient was assured that the tumor was surely coming away, and encouraged to bear "yet awhile" with her great suffering. On the eighth day the tumor was found in the vagina and removed. It was about the size of a duck's egg and very hard to the touch. After a short period of mild septic trouble the patient passed through a quick convalescence and rapidly recovered. Seen a few months ago, she says she has never had any illness since getting rid of this growth, and certainly looks well.

Case II.—Mrs. P., German, married, five children, no miscarriages, menstruation began at fourteen, now thirty-seven years old. Seen first in March, 1881. The patient is a robust, hearty woman. Never had any trouble until six months after the birth of last child, about one year ago, when she began to flow too freely and too often—as often as every week or occasionally twice a week. The blood was in large quantity and bright red in color.

The examination revealed an enlarged uterus—it could be felt above the pubis during bimanual examination. The sound entered easily for five inches, the handle deviating forward and to the left. Its use was accompanied and followed by very free bleeding.

Diagnosis: Submucous uterine fibroid on anterior wall. Treatment: locally the alum tampon was used as in the previous case. Squibb's fluid extract of ergot in half drachm doses every six hours. The patient was ordered to remain in bed. On the succeeding day all the tampon, except the alum, was removed. No hemorrhage; slight pains complained of. On the second day the pains were very severe and morphine was given to control them. The alum tampon was removed and a carbolized hot water injection ordered three times a day. On the third day pains still severe and a foul-smelling vaginal discharge commencing.

This condition persisted until during the night of the eighth day, when he was summoned to the patient on account of the unusual severity of her sufferings, the messenger, her husband, saying it was just as if she were in labor. On his arrival the pains had quite ceased. Examination showed the loss of considerable blood, and the vagina was found filled with a large fleshy mass, horribly offensive. The finger could be passed beyond it, and the largely opened cervix recognized. It was seized with a vulsellum forceps, twisted a few times upon itself, and then delivered. The mass was as large as a closed fist, dark colored, ragged all over its surface, and very foul smelling. The patient rapidly regained her usual health, and is well to-day.

Case III.—Mrs. E., thirty-three years old married, three children living, one miscarriage; menstruation commenced when fourteen years of age. Was first called to visit her January 2, 1885, for severe uterine hemorrhage. She never had any trouble with menstruation until about two years previous. Shortly thereafter she was operated upon for laceration of the cervix, without much relief to her trouble; since, she had gradually grown worse, so that she was not free from bleeding ten days in the month. One year previous to seeing her, the uterus was freely curetted and fuming nitric acid applied to the cavity to relieve the bleeding. This procedure failed in any good result.

At this visit the bleeding was extreme in degree. Examination revealed the pelvis largely filled with a smooth, doughy mass. After considerable searching the *os uteri* was found high up above and close to the pubis. It could only be found by crowding the finger

between the bone and the growth. The growth was exquisitely tender to the touch or any manipulation. Bimanual palpation discovered an uncertain mass above the pubis. The vagina was tamponed temporarily, and morphine administered hypodermatically. The diagnosis was reserved. It rested between hæmatocele and soft myoma. The tumor was compressible, at least its elements seemed to give way to the pressure of the finger; it was semi-elastic and painful under manipulation, filled the entire posterior half of the pelvis, and the os was carried well upward forward. It might be, and probably was, a myoma of the posterior uterine wall retroverted.

A few weeks ago he had the satisfaction of seeing the *fac simile* of this case, so far as the character of displacement and the position of the tumor was concerned in a patient under the care of Dr. Merriman, although the tumor in Dr. Merriman's case was much harder and more resistant. Dr. Merriman, with skill and apparently with ease, lifted the tumor out of the pelvis into the general abdominal cavity, after placing the woman in the knee-elbow position—a change bringing much comfort to the patient. Under the use of ergot the growth is diminishing in size.

The patient was put upon fluid extract of ergot in half drachm doses three times a day. The next menstrual period showed no change other than a diminished loss of blood. In June the flooding was quite free and accompanied with considerable pain. In July everything was as bad as possible, with so much pain that the ergot was discontinued. Repeated examination now narrowed the diagnosis down to soft myoma. The removal of the uterine appendages was suggested, in the hope that this procedure would anticipate the menopause, stop the bleeding, and lead to the gradual atrophy of the growth. In September consultation was solicited with Prof. W. H. Byford, when the patient was etherized and carefully examined. The sound, introduced with great difficulty, owing to the displaced position of the os, passed in over five inches, positively demonstrating the nature of the growth, its consistency showing it to be the soft variety of myoma. As the patient could not be said to be in danger of her life, the operation was refused by her friends, although the sufferer was willing enough to have it done.

The previous treatment was endorsed by Prof. Byford, and its continuance advised. The fluid extract of ergot was resumed and rendered bearable by morphine. The October illness was accompanied by slight hemorrhage, but excessive pain. These uterine contractions continued after the menstruation ceased, until, during the last week of October, they became labor-like in character. Examination now revealed that the uterus had righted itself, the os was becoming patulous and its edges thinned out; through its opening the projecting tumor could be felt. On the second day of November pieces of the broken-down mass, horribly offensive, could be seized with the forceps, pulled out of the uterus, and cut away.

Chilly sensations began to be felt by the patient, sweating came on, temperature ran up to 101° F., and a mild septicæmia was established. During the following week the pains never ceased. Quinia was administered freely. The vagina and uterus were irrigated with hot carbolized injections, and portions of the mass removed as fast as they could be reached; at the end of a week the last remnant was gotten away. The patient was very much reduced physically, but rapidly convalesced, and is now perfectly well, with her menstruation normally reëstablished. Fully a quart of soft pultaceous pieces of the growth was removed.

Case IV.—Mrs. L., German, thirty-four years old, one child, was seen first November, 1885. She had been suffering with increased menstrual flow for a year. She came to me to be treated for an external, painful, labial swelling. It proved to be a vulvo-vaginal abscess. It was opened freely, and gave no further trouble. A uterine tumor was noticed and examined. It was found to be of considerable size,—could be detected above the pubis. She was put upon one-half drachm doses of fluid extract of ergot every six hours. This she continued for six months steadily, with varying conditions of pain and hemorrhage, until, in April, 1886, the hemorrhage ceased, pain became very severe, and a shreddy, foul-smelling discharge manifested itself. She was removed to the St. Joseph's Hospital, and after ten days of antiseptic washings and removal of masses of broken-down tissue, the mass was entirely extruded. This patient had also quite a severe septicæmia, but finally recovered, and is now well.

Aside from crucial demonstration, it seems reasonable to assert that these four cases were cured by means of the remedy used, and by that alone. It is well known that most authorities state that no positive reliance can be placed on the use of ergot. His experience surely, as here illustrated, and confirmed by other cases seen, leads him to think that this adverse judgment must be qualified, especially in the treatment of the submucous bleeding fibroids of the uterus. If the growths be partially interstitial, the less the thickness of uterine tissue between them and the mucous covering, the more certain will the remedy be curative. Of course, it will be impossible to demonstrate the exact amount of uterine wall which forced contractions will destroy; hence a trial is desirable in all cases not purely subperitoneal and pedunculated. Still he is quite convinced that the severity of the hemorrhage gives one a good reason to speak *positively* of the results to be accomplished by its use. He has not deemed it necessary to look up the history of the first use of this remedy for stimulating uterine contractions. It is sufficient for him to say that his confidence in the remedy and persistence in its use, even when failure of good results seemed certain, has followed directly as the result of the teachings and experience of Prof. Wm. H. Byford, who has never lost an opportunity to urge upon the profession his belief in the specific action of the remedy, and its absolute certainty of cure in many cases. He is quite sure that Prof. Byford deserves the credit of being the first to make use of ergot with the idea of destroying the vitality of the growth, and, in addition, causing its expulsion from the uterus.

The third case shows plainly how absolutely unnecessary any operation would have been. The removal of the appendages might have stopped the hemorrhage, but such a perfect cure as now exists could never have followed operation, to say nothing of the harm done by unsexing the woman; still, no case could present better reasons for such a procedure, none in which it would have been more justifiable from the indications present.

To him it brings the lesson to make oöphorectomy the *dernier ressort* in all cases, certainly to give the remedy used at least a six months' trial without result before operation be sanctioned.

The difficulties attending the differentiation between a sac of fluid and the soft myomata was well illustrated by this case. The sensation communicated to the touch was scarcely distinguishable from fluctuation. It was only after repeated examinations under ether, and the use of the sound, that the diagnosis was satisfactorily settled.

The fourth case for a time seemed one in which the treatment would come to nothing. Every one became discouraged. The suffering was increased, and no advance was made, apparently. By persistence the cure was accomplished. In this case operative interference was solicited by the patient, and would have been most readily submitted to, without any urging. He read aright the indications which authorities give, to justify the resort to removal of the uterine appendages; they were all present in this case, and more too if needed. Certainly the final result has proven that such interference would have been uncalled for and lamentable.

He was quite well aware that four cases cannot be considered absolutely demonstrative of any rule, still these four increase the number already published in proof of the curative action of ergot, administered thoroughly, for submucous uterine growths. It is impossible for him to understand how some good authorities can still assert their disbelief in ergot; in fact, calling it the most inert and disappointing of all drugs. No law has as yet been evolved fixing even by approximation the period of time required for the effects of the medicine to show themselves. The idiosyncrasies of the patient, the thickness of the uterine envelope, the distance from the mucous membrane, the purity of the drug, and many other conditions, render it scarcely possible that any such law can ever be laid down. The trial should be made patiently aud persistently, just so long as the patient's condition will warrant its continuance, and a complete expulsion of the growth, followed by rapid recovery, will be the reward.

Dr. F. E. Waxham read a paper on

OCCLUSION OF THE OS UTERI AS AN IMPEDIMENT TO LABOR, WITH A REPORT OF TWO CASES.

Having met with occlusion of the os but once in several hundred cases of labor, and knowing of a number of physicians in extensive practice who have never seen this condition present at the time of confinement, he is convinced that it must be of rare occurrence, and the history of two cases may not be uninteresting.

Mrs. S., German, primipara, twenty-nine years old, fell in labor about 9 P. M., February 21, 1885. The membranes ruptured soon after the commencement of labor and the amniotic fluid gradually drained away.

The patient was seen between 3 and 4 A. M., at which time the pains had become very severe and frequent. Upon examination the head was found low down in the inferior strait, almost presenting at the vulva, and covered apparently by a thin membrane through which the advancing head threatened to burst with every pain. Upon the most careful digital examination, no os could be discovered nor the slightest indication of one. Professor Nelson was summoned and promptly responded. His more experienced finger detected a very slight dimple in the centre of the presenting tissues. By keeping the finger upon this slightly thickened tissue, he discovered that it became very much thinner with every pain, while as the pain subsided the tissue assumed a very slightly umbilicated appearance. By firm and continued pressure upon this suspicious spot an opening was at length effected and the os gradually dilated. As the labor proceeded slowly, and fearing the result to the child of so long a delay of the head in the pelvis, and the os being fully dilated, the forceps were applied. The child was delivered without injury to the mother, but it was asphyxiated and required considerable effort in resuscitation. Professor Nelson stated that this was the second case that had come under his observation, and kindly gave him the history of the following one. He was called to attend a lady in her first confinement, a Swede, twenty-three years old, and married about one year. Making a hasty examination, he found a well-formed cervix but did not detect the os. On returning a few hours later, the head had descended to the inferior strait and was indeed presenting at the vulva and covered by the cervix, which had become so thin as to resemble the membranes. The membranes had already ruptured and the amniotic fluid had gradually escaped. There was no appearance whatever of the os. It could not be detected by the finger, and the head seemed about to burst through the uterine tissue. The patient was placed before a window, the labia separated and careful search made for the os. Only after a prolonged examination was it found. It was patulous only to the extent of admitting the very finest surgeon's probe. After this had been introduced and worked about, a second probe was passed, and by separating them the os was gradually and sufficiently dilated to allow the finger to enter. The os was then rapidly dilated and labor progressed normally.

Dr. Waxham finds the literature on this subject quite meagre, many writers on obstetrics omitting the subject entirely, while others refer to it very briefly.

All authorities agree that the occlusion of the os is the result of inflammatory change occurring subsequent to impregnation. It is a noteworthy fact that in both these cases the membranes ruptured and the amniotic fluid escaped in the very early stages of labor, showing that the membranes were adherent to the uterine tissue about the internal os. As the internal os dilated, rupture of the adhesions and of the membranes necessarily followed.

ELECTION OF HONORARY FELLOWS.

Mr. Lawson Tait, of Birmingham, and Professor T. Gaillard Thomas, of New York, were elected Honorary Fellows of the Society.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, May 24, 1886.

The President, James T. Whittaker, M.D., in the Chair.

(Continued from page 81.)

Dr. James G. Hyndman, in introducing the subject of

THE CHEMISTRY OF ECHINOCOCCUS,

said that numerous investigations have been made of the wall of the echinococcus cyst as well as of the con-

tents. While a knowledge of the nature of the wall will probably never be of any considerable clinical value, it should nevertheless be referred to in the discussion. It is described as being sometimes delicate and of a dull white color, at others very substantial and translucent; of about the consistence of coagulated albumen and divided into distinct lamellæ. It consists, according to Heller, of a substance resembling chitin, but whether actually chitin or not has not been positively determined. Its insolubility in caustic alkalies and dilute acids has led to its classification among those substances of chitinous composition. Chitin is a colorless, amorphous body which is insoluble in water, alcohol, ether, acetic acid, dilute mineral acids, and in solutions of the caustic alkalies. Its composition is believed to be $C_{15}H_{26}N_2O_{10}$. The researches of Hoppe-Seyler and Baumann have shown that, when heated with acids, chitin combines with the element of water and splits up into a nitrogenous body, glycosamine and acetic acid.

Investigators have rendered our knowledge of the chemical constitution of the echinococcus cyst contents far more accurate than that of the cell-walls. A summary of the chemical examinations made by a number of competent observers gives the fluid the following characters: It is colorless, contains from 1.5 to 2 per cent. of solids, and has a specific gravity varying from 1.007 to 1.015. It contains a considerable proportion (½ to ¾ per cent.) of chloride of sodium, and some earthy salts of succinic acid; also inosite and grape sugar in small amounts. Albumen, if present, is in small amount.

It was long believed or rather hoped, that the chemical composition would be found to differ according to the organ in which the cysts were situated, and thus afford valuable assistance in diagnosis. This hope was, however, doomed to disappointment. In the case reported by Hayem and Graux (*Progrès Méd.*, No. 19, 1874), in which the echinococcus vesicle clogged the ductus communis choledochus, causing attacks resembling hepatic colic, chemical investigation showed the contents to be of a greenish-yellow color, slightly alkaline, and of a specific gravity of 1.020. It consisted of 97.9 per cent. water, 0.18 per cent. mucus, 0.4 per cent. albumen, 0.58 per cent. chloride of sodium, 0.7 per cent. sulphates, soluble and insoluble carbonates, extractives and coloring matters.

In some cases of liver echinococcus, leucin has been found, while in others it was absent, the investigations being conducted by the same observers.

Succinic acid and grape sugar also fail us as positive aids in diagnosis. Jacobsen found them both in two cases of liver echinococcus and failed to find them in others. Wilde found both these substances in a splenic and in a pulmonary case.

Habran's claim that the so-called hæmatoidin crystals have never been found in any echinococcus cysts except those of the liver and bile-passages, has not yet been disproved, and is worthy, if not of credence, at least of further investigation.

Chemical examination may also be of service in the diagnosis of cysts connected with the kidney as the characteristic urinary constituents have been found in no others. Kidney echinococci, too, are the only ones in which any considerable amount of albumen has been found, the only exception to this being that of repeatedly tapped cysts.

It will be seen from what has been stated, that, although the chemistry of this fluid is tolerably well understood, there is no ingredient which can be positively and absolutely relied upon in the formation of a diagnosis. In the absence of any pathognomonic ingredient, chemical must rank secondary to microscopic examination in the diagnosis of this disease.

Dr. Walter S. Christopher remarked that the chemistry of echinococcus is rather limited. The fluid itself when uncontaminated with the products of inflammation, is usually colorless, but marked by a slight opalescence. It is neutral in reaction and has a specific gravity varying from 1.006 to 1.015. Albumen, when present at all, exists only in small quantity. Sugar is often present, and inosit frequently forms as much as 1 per cent. of the total weight of the fluid. There are also found traces of urea, kreatin, and succinic acid, besides a considerable quantity of chlorides. Of the ingredients present, two are of special importance because of the aid they lend to diagnosis. These two are inosit and succinic acid, Inosit, the so-called muscle sugar, is found in certain of the normal fluids of the body, but in none which ever collect in such large quantity as to produce a cyst. The same may be said of succinic acid, except that it is occasionally found in hydrocele fluid and in the fluid of hydrocephalus, but such collections of fluid could hardly be confounded with an echinococcus cyst. It is somewhat unfortunate, however, that the tests for inosit are such as cannot be applied at the bedside, or, as a rule, by the busy physician. To determine the presence of inosit, it is necessary to separate it from the fluid, and apply the tests directly to the pure sugar. The method of collecting the inosit and applying the test for its presence was then described in detail.

Succinic acid, he continued, is less difficult of recognition than inosit, but it is not so often present. A flocculent brown precipitate is thrown down on the addition of a ferric salt. This is readily distinguished from ferric hydrate by the absence of a decided alkaline reaction, and from basic ferric benzoate by the failure of mineral acids to precipitate succinic acid. The importance of detecting inosit and succinic acid in a fluid supposed to be echinococcic should not be underestimated. While their absence would not prove that the fluid was not from an echinococcus cyst, their presence certainly would prove that it was. And when we consider the other infrequent occurrence of hooklets, and their difficulty of recognition when found, the value of succinic acid and inosit is not less than the classical sign itself.

THE PATHOLOGY OF ECHINOCOCCUS.

Dr. E. W. Walker reviewed briefly the morbid anatomy of the disease. The echinococcus after it has reached the liver or other organ develops a cyst, as has been described. From this cyst are developed usually internally, but sometimes externally, secondary, or daughter cysts. When the cysts develop endogenously, or within the mother cyst, we have a large cystic tumor formed and enclosed in a common sheath, but when the growth is exogenous, or outside of the mother cyst, the entire organ may become riddled. The case under consideration is an example of the latter form of growth. The liver, in the specimen presented, had become

almost entirely transformed into a mass of cysts. There were at least twenty-five or twenty-six cysts of large size, and numerous small ones. These cysts contained fluid varying in specific gravity from an almost watery to an almost semisolid consistence. Microscopic examination of the fluid revealed little of importance. Fragments of membranes were seen, broken-down liver cells, fat globules, cholesterine—in fact, an atheromatous collection of material, but no hooklets. The speaker did not find scolices, although Dr. French reported that he had found them. In a specimen which Dr. Whittaker had obtained by aspiration, and submitted to him for examination, the speaker had found two or three rather dubious specimens of hooklets, too uncertain in their appearance to permit him to make a positive diagnosis from the specimen before operative measures had been undertaken.

Dr. James M. French remarked that the description given by a former speaker of the microscopic appearances of not only the echinococcus, but also of its capsule, the daughter cysts, and the scolices, had been so complete as to leave little to be said in regard to the microscopic examination of such cases. Speaking of the case under consideration, he said that he had made repeated examinations of fluid taken from different large and small cysts after death, as well as of fluid which he had obtained at the time of the operation. The latter specimen was translucent, of low specific gravity, and of a reddish tinge owing to the admixture of a small quantity of blood from the incision. The microscope revealed only red blood-corpuscles, a few white corpuscles, and numerous inflammatory cells. Of the other specimens examined some were clear and limpid, while others were thick and oily, even of an almost semisolid consistence. In these specimens he had found, in varying numbers, cholesterine crystals, free fat globules, fatty liver cells, fragments of the internal fibrillated membrane of the capsule, and inflammatory corpuscles. Calcareous matter was not present. Free hooklets could not be discovered, nor anything resembling them. In one or two instances, however, he had seen what he thought were unquestionably immature scolices. These were attached to fragments of membrane, and would have escaped recognition but for the row of minute hooklets about the head.

DIAGNOSIS OF ECHINOCOCCUS.

Dr. F. Forchheimer said that one of the first points which come up in this connection is that hydatids are with us an exceedingly rare affection. As will be seen further on, cases are met within which the veriest beginner will be able to make an approximate diagnosis; while, on the other hand, there are those in which the diagnosis is either an impossibility or a brilliant inspiration—if you will, a guess. A practising physician in Iceland will have no more difficulty in recognizing this disease than we would in recognizing a pneumonia; we, on the other hand, would have to give very much more thought to cases than is ordinarily done in practice, in order to take into consideration even the possibility of the existence of an echinococcus in making a differential diagnosis. If we are, then, to arrive at any such diagnosis we must in all cases of fluctuating tumors constantly remind ourselves of the possibility of an existing hydatid, and all our tables of differential diagnosis of fluctuating tumors ought to include this form of tumor. The question of necessity, so far as the welfare of our patients is concerned, of doing all this bears in an altogether different direction, and need not be discussed under this heading.

Given, now, a patient with a tumor, the question that arises first will be for us to determine why this tumor can be looked upon as hydatid. To answer this question the patient must be questioned, he himself examamined, and lastly, the tumor most carefully examined. As to the patient, we will find that sex has no predisposing influence—that age, however, is to be taken into very great consideration. The great majority of cases occur between the twentieth and the fortieth years of life. According to Davaine, there are but two non-Icelandic cases on record in children under ten years of age, one, very doubtful, of Cruveilhier in a child twelve days old, and another by Bodson in a girl of four years. Charcot has reported a case in a man of eighty-one, and Monod in a patient of sixty-seven years. The appearance of the patient may or may not be of importance. As a rule, it is not; the presence of a tumor is all that has inconvenienced the patient in the case that has here been presented. He came to his physician apparently a well man; looking well, feeling well, having had no fever, simply possessed of a tumor, or having some function interfered with by its presence. Sometimes, depending upon the location of the tumor or the processes that have been going on within it, the picture is altogether a different one. Pain, fever, emaciation, cachexia, or local symptoms, with all that these may imply, and the patient a most undoubted wreck. With regard to pain, the statements that come to us from those who have seen the greatest number of cases vary very much. Nearly all the authorities that I have been able to consult (Heller, Davaine, Cobbold) claim that the absence of pain is a characteristic of hydatids, while Finsen, who has seen more cases than nearly all the other observers taken together (245), says most distinctly that pain is complained of in all cases and that long before the tumor can be felt. The fact that the most important contributions to our subject have been made by men most interested in the biological aspect of the question must not be overlooked; it would seem more rational, from a clinical standpoint, to suppose that a tumor would produce some pain even if it is not sufficiently appreciated by the physician, as Bamberger says in his classical work on *Diseases of the Chylopoietic Organs:* "Hydatids of the liver sometimes arrive at a very great degree of development . . . . in individuals who have never complained of symptoms to be referred to the liver. In others, however, the development is accompanied by more or less intense, undefined, pressing or lancinating pains." The time taken for the development of the tumor or tumors must also be taken into consideration. Hydatids are a very slow growth, taking years for their development (10–15, Davaine).

Coming now to the examination of the tumor, we will find that there are some things that will make our diagnosis a very easy one, while in other cases it will be impossible. The locality of the tumor must be determined precisely; more hydatids are found in the liver than in all the other organs taken together; after this organ comes the lung. The tumor itself is, as a rule, spherical, fluctuating, and dull upon percussion. Its outlines are

smooth; it is elastic, and when examined in a peculiar way gives a sign which is considered almost pathognomonic by most authors. The latter is called the hydatid fremitus (frémissement) of Brianzon, not Piorry, for the former has undoubted right to priority. The French authorities are extremely particular concerning the method by which this symptom is to be detected. Brianzon states that "the tumor must be grasped as firmly and exactly as possible, exercising a slight pressure, and with the other hand a sharp and rapid blow is to be given." Others are still more explicit. The sensation perceived by the hand grasping the tumor is described in various ways; a trembling as of jelly; the sensation produced when touching a piano-string of low pitch while striking the key of the note itself, etc. If we look at the physical basis of this phenomenon, we find that when a fluid is contained within elastic walls and is set into vibration the fremitus is produced. As Skoda puts it, "If percussion is made upon a stomach filled with water, and held in air, we will have the clearest conception of what Piorry understands by the hydatid tone." Davaine practically admits this explanation. One can hardly be allowed to doubt the opinion of Skoda on so simple a matter, and it is therefore but logical to assume that the fremitus is not absolutely characteristic of hydatids. Any collection of fluid under the above-mentioned conditions, when struck and examined in the way described, will give the hydatid fremitus. The discussion of its occurrence in acephalocysts, therefore, is one that is upon a wrong basis—the existence or non-existence of buds being a secondary consideration, the relation of fluid to the wall and the elasticity of the latter, being the primary one. If we look to our authorities, we find Davaine, indeed, the whole French school, putting their trust absolutely upon this one sign. Heller states that it is "almost pathognomonic;" Cobbold says that "it scarcely differs from the ordinary impulse communicated by fluid matter within any other kind of tumor;" Bamberger has found it in ascites and ovarian tumors, and therefore conceives it not at all characteristic. Besides, Frerichs, who seems to believe in the sign, says that he could not detect it in more than half his observations. And lastly, the tumor frequently is in such a locality that it cannot be examined for this symptom. Taken all in all, then, the hydatid fremitus is going the way of all other pathognomonic signs.

When the modern physician deals with a tumor concerning the contents of which he is in the dark, he proceeds to investigate it with an exploring needle, hypodermatic syringe, or aspirator. By means of one of these methods he frequently obtains results most valuable to his diagnosis. When in one case there is enough fluid to be drawn off, this must be examined most carefully. It will be found to be a clear, sometimes yellowish, neutral or slightly alkaline fluid, of a specific gravity varying from 1.007 to 1.019. This fluid does not, as a rule, contain any albumen, but is very rich in sodium chloride. Other substances are found, as sodium and potassium succinate, leucin, inosit, grape sugar, and hæmatoidin. Of all these, the absence of albumen and the presence of sodium chloride in large quantities (as high as 0.84 per cent., Jacobsen, Heller) seem most characteristic. Of these two signs, the sodium chloride is the most constant, albumen being frequently found—always after the tumor has been frequently tapped. It would be very convenient if the presence of succinic acid could be relied upon as a characteristic test. According to Hoppe-Seyler, succinic acid is found in the juice of various organs, spleen, thymus and thyroid glands, in the fluids from hydrocephalus and hydrocele, the blood, and possibly in the urine. Any possible mistake between the parenchymatous fluid of the organs mentioned above could be avoided by noting the quantity, color, and the chemical reactions of the fluid, and, above all, by the location of the tumor. The same can be said for hydrocephalus and hydrocele, and it would therefore seem that we had found in the presence of succinic acid a reliable test. Especially can this be relied upon because it is a test which can be executed by the beginner—the addition of a ferric salt (ferric chloride) produces a brown, insoluble precipitate in fluids containing succinic acid. If albumen be present, absolute alcohol will precipitate both it and the acid; with the coagulation of albumen comes down the succinic acid—after filtering off the fluid the acid is readily dissolved in water, and the test can then be applied. If we find the acid then, we can be sure that we are dealing with hydatid fluid. Unfortunately, it is not found in all cases, probably not in the majority of the cases. All the other substances found in the tumor are determined more by its locality than by its character, and are therefore of comparatively little importance because they may be found in so many fluids. After the chemical comes the microscopic examination. Here we come to evidence that points with absolute certainty to the diagnosis. The presence of the ectoderm of buds or of hooklets is absolute certainty of the existence of a hydatid. These have already been so well described that I will not again go over the subject. It may happen, however, that either on account of the rupture of the tumor, the extreme smallness of the instrument, or the inaccessibility of the tumor, that neither of these can be found. In such a case we must rely upon the preceding signs. If they are all absent, a diagnosis naturally becomes an impossibility. This must happen, and perhaps quite frequently. A tumor the presence of which is not observed by the patient will certainly not receive much attention at the hands of the physician. Symptoms produced by the presence of a tumor, the latter being inaccessible, will be thoroughly examined into, the nature of the tumor being as obscure as its locality, unless other tumors be observed in different parts of the body—for us, especially the liver and lungs. When the tumor itself can be examined there can arise a doubt only in case it has undergone ulceration, suppuration, or the so-called tubercular degeneration. In the latter instance, especially in echinococcus multilocularis, the fluid may not show any of the characteristics of hydatid fluid. Under ordinary circumstances one or other of the signs just described will be found.

(*To be continued.*)

CORRESPONDENCE.

ERROR IN STATEMENT OF RESULTS OF BATTEY'S AND TAIT'S OPERATIONS.

To the Editor of The Medical News,

Sir: In your issue of July 3d, Mr. Tait says: "I brought from a distance of forty miles the patient whom he says died after the operation on August 1, 1872," etc.

This is another "slip of the pen." At no time have I said that this patient *died*. The statement in my paper, at the Congress, was a simple repetition of the assertion of Mr. Tait himself in the *British Medical Journal*. It was written some time before and ought to have been omitted. Respectfully yours,

ROBERT BATTEY.

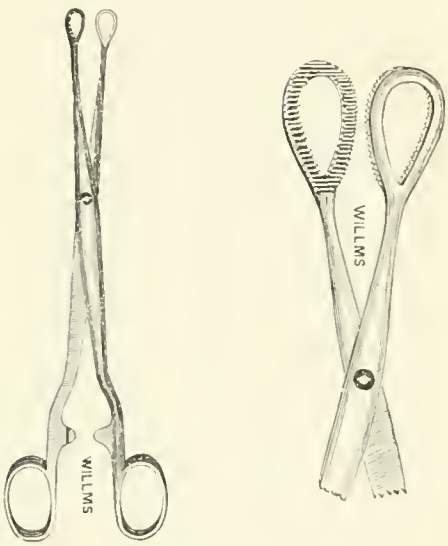
ROME, GA., July 10, 1886.

NEW INVENTIONS.

COMBINED SPONGE AND PLACENTAL FORCEPS, AND CURETTES, ETC.

BY ROBERT T. WILSON, M.D.,

ASSISTANT SURGEON TO THE HOSPITAL FOR THE WOMEN OF MARYLAND, BALTIMORE, MD.



In these cuts is shown a useful instrument calculated to be of service in several ways, namely:

1st. As a sponge forceps.

2d. As a placental forceps, after an abortion, where the membranes are retained.

3d. By taking the instrument apart, one has two curettes, which may be used when a dull curette of their size is required.

4th. As a forceps to be used in the removal of a stone from the bladder.

5th. As a forceps for holding the tongue (an instrument an anæsthetist sometimes wants).

No doubt the forceps will be found to be useful in more ways than those here mentioned. They were made for me, in February, 1885, by Chas. Willms & Co.

I append an opinion in regard to them by my friend, E. C. Carter, M.D., Assistant Surgeon U. S. A., to whom I presented a pair last year:

"I had an opportunity to try your forceps in a case of abortion, criminally induced, with retention of membranes. The forceps did the work required of them perfectly, and I am convinced the woman, a Mexican, would have died if I had not had them.

"Indeed I regard the forceps as a valuable addition to my armamentarium."

NEWS ITEMS.

CONFERENCE OF M. GRANCHER ON THE PROPHYLAXIS OF HYDROPHOBIA.—On June 22, 1886, M. Grancher, the collaborator of M. Pasteur, presented, for the first time, the clinical history of the patients treated for hydrophobia by vaccination. The persons bitten and vaccinated were grouped in three classes:

1. Those bitten by a dog of which the nervous system was sent to Pasteur's laboratory, inoculated in rabbits, and caused death of the latter by hydrophobia; or those who had been bitten by a dog the bite of which had caused death by hydrophobia in other animals or man.

2. Those bitten by a dog which before or after death had been examined and declared rabid by a veterinarian.

3. Those bitten by a mad dog which had escaped observation.

The statistics extend to April 22, 1886.

The total of the three categories includes 1335 patients. Elaborate and rigorous statistics prepared by M. Leblanc, Member of the Academy of Medicine and Veterinarian to the city of Paris, show that of 100 non-vaccinated persons bitten by rabid animals 16 die.

In the first group above mentioned there were 96 patients, of which 1 died, a mortality of 1.04 per cent.

In the second series are 644 subjects and 3 deaths, a mortality of 0.46 per cent., or for the two series, of 0.75 per cent.

In the third series are 232 cases, which are here disregarded.

The mortality among patients bitten on exposed surfaces (the face and hands) was in the first group 54, with 1 death, mortality 1.8 per cent.; in the second group, 400 with 3 deaths, mortality 0.75 per cent. M. Brouardel, in examining the statistics of the Council of Hygiene from 1862 to 1872, finds that in non-vaccinated persons bitten on exposed surfaces, the mortality is 80 per cent.

In addition, M. Pasteur has vaccinated 48 persons bitten by mad wolves; of these 7 have died, giving a mortality of 14 per cent. M. Brouardel has shown that non-vaccinated individuals similarly bitten present a mortality of 66.5 per cent.

If the efficacy of the rabic vaccine be compared with that of the *charbon* vaccine and the Jennerian lymph, it is found that the three agents have practically the same value.

Before the introduction of the Jennerian vaccination, out of 1000 smallpox patients, 500 died, while after its introduction but 23 out of 1000 vaccinated persons succumbed. The value of Jennerian vaccine is, therefore, $500 : 23 = 21.7$.

Similarly for *charbon*. Before the use of Pasteur's vaccine the mortality was 120 per 1000, while at present out of 1000 vaccinated animals but 5 die. The value of the *charbon* vaccine is, therefore $120 : 5 = 24$.

In rabies, before the method of vaccination, the mortality was 160 per 1000, while after vaccination the deaths were 7 per 1000. The value of the antirabic vaccine is, therefore, $160 : 7 = 22.85$.

The lecture was received with enthusiasm, and several hundred persons were unable to obtain standing

room. It will probably be repeated in the great amphitheatre of the École de Médecine.

PROFESSOR SEMMOLA, of Naples, well known for his numerous scientific researches, has just been honored by official appointment as Senator of the Kingdom of Italy.

GERMAN VACCINE COMMISSION.—The Chancellor has convened a Commission to consider the formation of a council which shall give authoritative instruction in the methods of securing, preserving, and transporting animal lymph. The Commission, under the direction of Dr. Kohler, consists of Drs. Koch, Gaffky, Schönfeld, Grossheim, Schulz, Pissin, and Hausburg, all of Berlin; and of Risel, of Halle, Kranz, of Munich, Chalybäus, of Dresden, v. Koch, of Stuttgart, Arnsperger, of Karlsruhe, Fischer, of Pforzheim, Reissner, of Darmstadt, Pfeiffer, of Weimar, and Krieger, of Strasburg.

CREMATION ON LONG ISLAND.—Since December 4, 1885, there have been forty-five bodies cremated at the Crematory of the New York Society, Fresh Pond, L. I.

MEDICAL PROGRESS IN CHICAGO.—Dr. Gregory writes to the *Medical Press*, of Western New York, his impressions on visiting Chicago after a six years' absence. He says: "In the six years last past, the medical element of Chicago has developed beyond the stage of personal gain, and reached that of public benefit. Physicians there are not now telling of the number of prescriptions written in a day, so much as they are detailing anomalous conditions met with. To be sure, even a professional man, breathing a truly professional spirit, cannot live in Chicago without becoming imbued with a business fervor; consequently nearly all physicians have a down-town office as well as one at their residence. This peculiarity is very noticeable, as sometimes as many as twenty-five physicians are grouped in down-town offices over a drug-store. St. Louis is the only other city where this concentration of physicians' offices down town and over drug-stores occurs so conspicuously. While in this feature Chicago differs from Eastern medical centres, she now resembles them in multiplied agencies through which physicians render the public gratuitous service. Six medical societies and an unknown number of clubs are maintained, and eight medical journals are published in the city. With this mass of public work, and the large number of men thus engaged, it must be evident that a far different professional spirit would be engendered than without such agencies. Chicago must therefore be recognized as the medical centre of the West. Undoubtedly one of the agencies tending to produce this result is the State medical law, for in marked contrast to its previous condition is the present absence of charlatan advertisers and nostrum doctors."

A BELGIAN PRIZE TAKEN BY AN AMERICAN PHYSICIAN.—The competition instituted by L'Académie Royale de Médecine de Belgique in 1881, and continued through 1883, is closed, and the report of the Commission of the Académie is made known. The question submitted was: "To Elucidate by Clinical Facts and by Experiments the Pathogeny and the Therapeutics of the Diseases of the Nervous Centres, and especially of Epilepsy." A number of memoirs were submitted, which were entered by European authors of preëminent rank in this department of research. The honors of the competition have, however, been awarded to an American physician, Dr. George T. Stevens, of New York. His memoir is the only one selected by the Royal Academy for publication, and the only one for which an award was made.

THE WOMAN'S MEDICAL COLLEGE OF NEW YORK.—Dr. H. M. Silver has been appointed Professor of Surgery in the Woman's Medical College of New York, and Dr. W. Meyer, Clinical Professor of the same branch.

SCIENTIFIC JOURNALS IN JAPAN.—A paragraph in *Nature* states that there are thirty-seven periodicals published in Japan, devoted to matters connected with education; of this number, seven are medical papers, with a monthly circulation of 13,514. There are nine papers relating to sanitary matters, and two to pharmacy. There are also nine other papers devoted to other branches of science; and no fewer than twenty-nine papers, with a circulation of over 70,000, engaged in disseminating a knowledge of popular science.

MORTALITY AMONG MEDICAL MEN DURING THE TYPHUS EPIDEMIC IN MOSCOW.—The typhus epidemic in Moscow, which is now, it seems, on the wane, has played great havoc in the ranks of the profession, no less than five junior police surgeons having already died. Most of them were without private means, and left their families entirely without provision. Five more surgeons have been attacked by the disease, and it is hoped that they may recover.

REGAL ANTISEPTICS.—The King of Servia, according to the journals, has issued the following proclamation: "Whereas it is irrefutably proved by science that the so-called antiseptic treatment of wounds yields more beneficial results than all other methods, we are pleased to order that henceforward the said antiseptic plan of treatment be solely employed in all the hospitals of our kingdom, and that corrosive sublimate and iodoform be used until our further disposition."

EARLY DISCOVERY OF COCAINE.—It is generally supposed that Niemann, a German chemist, was the first to discover cocaine, having isolated it as early as 1859. Dr. Clemente Torretti, late professor of chemistry and pharmacology at the University of La Paz (Bolivia), now writes to a South American journal that he has found irrefutable proofs, showing that in 1857 a Mr. Enrique Pizzi, his (Dr. Torretti's) predecessor in La Paz, succeeded in isolating the alkaloid of the coca-leaf, having been encouraged to make experiments on the coca leaves by Mr. Tschudi, the celebrated Austrian explorer, and Dr. Aquila Ried, a well-known personage in Valparaiso. Dr. Torretti adds that his assertion is not founded on documentary evidence only, but that he has actually found specimens of the cocaine manufactured by Pizzi in 1857.

THE AMERICAN RHINOLOGICAL ASSOCIATION will hold its fourth annual meeting at St. Louis, Mo., on the 6th of October next.

DEFECTIVE DRAINAGE.—A London builder was recently fined five pounds for allowing a dwelling to be tenanted before a certificate had been granted showing that the house was fit for habitation. Another builder was fined forty shillings for the same offence. The defects related chiefly to the water-supply, drainage, and ventilation.

PEDESTRIAN INSTRUCTION.—On the 21st of June there was opened on Glen Island, in Long Island Sound, near new Rochelle, a "Military Camp of Instruction in Marching," under the superintendence of the veteran pedestrian, Edward Payson Weston. The competitors, who are made up of members of the various militia regiments, are each to walk twelve hours a day for six days, carrying forty and a half pounds in the way of knapsacks and accoutrements, and the camp will be continued for nine weeks. On the opening day, an address was delivered by Prof. R. Ogden Doremus, in which he referred to Weston as the father of walking in this country, stating that since 1867 he had walked 63,500 miles, and that Dr. Richardson, who examined him in London, pronounced him the healthiest man he had ever examined. He concluded as follows: "I would advise all, if they desire good health, to sweat daily as the result of physical exercise. Gentlemen, I look upon this camp as the initiative step toward splendid results in our country."

A NEW DENTAL JOURNAL.—There has just been published in Breslau the first number of the *Journal für Zahnheilkunde*, which is the official organ of the "German Association of Dentists graduated in America."

PURCHASE OF NEW GROUND BY THE MANAGERS OF THE PENNSYLVANIA HOSPITAL.—The Pennsylvania Hospital has purchased about five hundred acres of land at Newtown Square, Delaware County, to be used, for the present, as a "convalescents' retreat," and ultimately as a new site for the hospital for the insane. The land cost from $200 to $300 per acre, and comprises four of the best farms in the county. It is reported that the buildings now on the grounds will be utilized for homes or retreats for the convalescent patients of the Hospital for the Insane in West Philadelphia, and those of the department of sick and wounded, at Eighth and Spruce Streets. It is thought that the change of air will hasten the recovery of these patients, while, at the same time, it will make room for new patients and somewhat relieve the present crowded condition of the various wards. No building operations will be begun on the new grounds until next year, as the time of the contemplated removal of the Hospital for the Insane has not been decided upon, but it will not be for some time yet. Newton Square is about five miles south of Bryn Mawr, and about an equal distance northeast from Media.

THE HYGIENE OF THEATRES.—Given a spacious theatre, crowded during an evening performance for a period of hours, what is the difference of the effects on its atmosphere produced by the electric light or by gas, particularly as to the temperature and the generation of carbonic acid? Such is the problem which Dr. P. Renk, Professor of Hygiene at Munich, has just set himself to solve. Taking the Theatre Royal of that city, which is lighted by 1400 lamps on the Edison system, he tested the two kinds of illuminants, with the following results: During a representation which lasted from 5.30 P. M., to 10.15 P. M., and was witnessed by 1790 people, he found that while the rise in temperature in the pit was 11.1° C. with gas, it was only 7.7° C. with the electric light, and that in the upper gallery it was 10.7° with the former, and not more than 7.4° with the latter. As to the increase in the production of carbonic acid, the results were equally important. In the pit it was as 2176 with gas to 1221 with the electric light, and in the upper gallery as 2855 with the first to 1430 only with the second.

AUSTRIUM: A NEW ELEMENT.—Among the papers of the late Dr. Linnemann, Professor of Chemistry in the University of Prague, has been found a communication addressed to the Royal Academy, and bearing the title, "Austrium, a new metallic element." It describes a new metallic element obtained by the deceased from arthite from Arendal, having a spectrum with two characteristic lines in the violet, one of which is fairly coincident with an unidentified line in Angström's atlas. It is stated that the paper will be published in the transactions of the Academy.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JULY 13 TO JULY 19, 1886.

GIBSON, JOSEPH R., *Major and Surgeon.*—Granted leave of absence for three months, to take effect August 1.—*S. O. 158, A. G. O.*, July 10, 1886.

BENNETT, RICHARD, *Captain and Assistant Surgeon.*—Leave of absence extended six months, on Surgeon's certificate of disability.—*S. O. 162, A. G. O.*, July 15, 1886.

GARDNER, EDWIN F., *Captain and Assistant Surgeon.*—Granted leave of absence for two months.—*S. O. 158, A. G. O.*, July 10, 1886.

KANE, J. J., *Captain and Assistant Surgeon.*—Ordered from Fort Ringgold, Texas, to Fort Hancock, Texas.—*S. O. 85, Department of Texas*, July 13, 1886.

CARTER, WM. F., *Captain and Assistant Surgeon.*—Ordered from Fort Concho, Texas, to Fort Ringgold, Texas.—*S. O. 85, Department of Texas*, July 13, 1886.

OWEN, WM. O., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Schuyler, New York Harbor.—*S. O. 84, Division of the Atlantic*, July 15, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JULY 18, 1886.

WENTWORTH, A. R., *Assistant Surgeon.*—Detached from the U. S. Steamer "Brooklyn" and wait orders.

NORTON, OLIVER D., *Assistant Surgeon.*—Detached from the U. S. Steamer "Minnesota," and to the U. S. Steamer "Brooklyn."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING JULY 17, 1886.

WHITE, J. H., *Assistant Surgeon.*—Granted leave of absence for thirty days, July 12, 1886.

PETTUS, W. J., *Assistant Surgeon.*—When relieved at Charleston, S. C., to proceed to Savannah, Ga., for temporary duty, July 9, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1008 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLIX. SATURDAY, JULY 31, 1886. No. 5.

ORIGINAL ARTICLES.

THE CARDIAC COMPLICATIONS OF BRIGHT'S DISEASE.[1]

BY JAMES T. WHITTAKER, M.D.,

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE AND OF CLINICAL MEDICINE IN THE MEDICAL COLLEGE OF OHIO, CINCINNATI.

THE heart and the kidneys stand in relation to each other, in the machinery of man, as the feeding or force-pump, and the escape or waste-water pipe. Disease of either one of these organs is therefore, of necessity, attended, sooner or later, with disease of the other.

In this relation the disease process may begin in the heart. In the general interference with the circulation which then ensues, stasis in the kidneys is revealed by a diminution in the quantity of urine, which becomes dark and heavy, shows thick deposits of urates, and later albumen, hyaline cylinders, and blood corpuscles. Both acute and chronic nephritis may thus develop from endocarditis or myocarditis.

Or, the kidneys may be affected secondarily by becoming the repositories of emboli, benign or malignant, with hemorrhagic infarctions, and so-called metastatic abscesses, which reveal themselves by the sudden appearance of hematuria, by suppression of urine, or may remain latent to be discovered only upon autopsy.

Next, both heart and kidneys may be affected simultaneously under the operation of the same cause, as by alcoholism, syphilis, or gout, as well as in the general wreck of the so-called arterio capillary sclerosis.

Lastly, the disease process begins in the kidneys and leads consecutively to disease of the heart, to pericarditis, more rarely to endocarditis, but most especially to hypertrophy of the left ventricle, a complication universally observed ever since its presence was first pointed out by Bright, though its significance has received proper interpretation only within recent years.

This curious condition which we know now to be compensatory, hence, to be favored and sustained in every way, is the sole cardiac complication which the limit of time allotted will permit me to discuss.

Hypertrophy of the left ventricle belongs to Bright's disease as much as do dropsy, albuminuria, and uræmia. It is one of the cardinal symptoms of the disease, but it rises above the other signs, rises, in fact, to physiological dignity in that it expresses an effort to overcome or neutralize the main effects of the disease.

It should be remarked, in the first place, that hypertrophy of the left ventricle is present in every case of chronic nephritis. The view that it occurs only in renal cirrhosis, in the so-called granular, contracted, or atrophied form of the disease, and is limited to this form, has been shown to be entirely erroneous. There is no such thing as a chronic nephritis without hypertrophy of the heart, unless, indeed, in the fortunately few cases where the patient is too feeble to develop an increase of tissue in any organ. Apparent but not real exception is also offered in the last stages of Bright's disease, when the hypertrophy has finally given place to dilatation as a last link in the chain of the disease process. The statement of Bartel's that any hypertrophy of the heart without valve lesion to account for it, ought to direct attention to renal cirrhosis should be modified to read, should excite suspicion of Bright's disease in general. A hard, wiry pulse, in the absence of fever or of any superficial evident disease, is enough, of itself, to excite this suspicion in the mind of the alert practitioner, and the sign is all the more valuable in that it shows itself early in the insidious course of this disease, months and sometimes years before nervous symptoms, dropsy, or failure of nutrition suggest the nature of the affection. For the increase in the impact of the heart is frequently to be observed in the course of two to four weeks from the inception of the disease, when this period may be determined, at which time it is already demonstrable on autopsy. It develops quickest and most completely in the healthy and robust.

Theories only prevail as yet regarding the cause of it. Bright who, as remarked, discovered it, but who could not at that time realize the importance of it, adopted the conservative view that it was caused either by the irregular and unusual irritation of the heart produced by the changed condition of the blood, or by the call upon the heart for increased activity to force the blood through distant contracted bloodvessels. Bright thus announced the two theories, chemical and mechanical, which still find advocates in the present day. In 1856, Traube published his support of the mechanical view in a paper that has been widely quoted ever since. He noticed it in connection only with the contracted kidney, and made it diagnostic of this form of Bright's disease. He derived it from the diminution in the quantity of blood flowing through the kidney, diminution also in the quantity of urine excreted, with the consequent accumulation of fluid in the aortic system and elevation of blood pressure. Traube established the theory of compensation.

In refutation of this view, it has been shown, first, that after extirpation of an entire kidney or the amputation of an entire member, with the consequent ablation of a much greater number of capillaries, whole systems of capillaries in fact, hypertrophy of the heart does not ensue, as the blood finds escape to other vessels, in the case of the kidney to the other kidney, which enlarges to do double duty;

[1] Read before the Ohio State Medical Society, June 3, 1886.

second, that hypertrophy develops also in cases where there is no atrophy of the kidney substance, as in chronic parenchymatous nephritis; third, that there is no diminution, but, on the contrary, an increase in the excretion of urine in the granulated kidney; fourth, that ligation of the ureters alone is followed by this hypertrophy.

But these objections have been more or less successfully met thus: first, that the cases of extirpation of the kidney have not been watched long enough to observe gradual and remote effects upon the heart. Grawitz and Israel in their experiments upon rabbits, and Lewinsky in his experiments upon dogs, in securing not sudden but gradual occlusion of the renal arteries, such as occurs in disease, invariably saw degeneration of the kidney structure ensue with hypertrophy of the left ventricle of the heart; second, that while this hypertrophy does follow parenchymatous nephritis, there is none the less occlusion in this form of Bright's disease; third, that while the quantity of water is increased in renal cirrhosis, the blood-pressure is undoubtedly raised in the aorta to produce the increase in the water excreted; and fourth, that ligation of the ureters produces disease of the kidneys leading at times to obstruction of the circulation, and when this obstruction does not occur, as in cases of pyelitis, no hypertrophy of the heart ensues.

From this summary of the evidence, it must be admitted that the bulk of testimony favors the mechanical theory and puts this hypertrophy in the same position as that which ensues upon valvular defects, or as that which occurs in the right ventricle in consequence of any block in the lungs. It is difficult to subscribe to the chemical theory of hypertrophy as advocated recently by Frerichs and Senator in the face of the fact that uræmia or retention of any toxic elements of the urine from other cause, as from cystitis, pyelitis, etc., is not attended by hypertrophy of the heart. There is abundant analogy in the body for hypertrophy in face of obstruction, that is, hypertrophy and hyperplasia, increase in size from increase of activity, but none for increase in anatomical elements under the action of a poison.

Inasmuch as the hypertrophy is preceded by a rise in tension in the aortic system, the pulse shows changes before the heart. It becomes, as stated, full and hard. It is at this time also slow, and while its frequency is increased with the development of the ventricular hypertrophy, it remains full and hard until the force of the heart finally begins to flag. The pulse now becomes rapid, feeble, and in the last stages flutters, so that most cases, unrecognized hitherto, are regarded as cases of simple heart disease. Then, inasmuch as the last stages of primary heart disease involve the kidneys with consecutive lesions, it is at times impossible to declare the order or sequence of the disease process, though this fact has at this time little or no clinical value, as the subsequent duration of life is short. The recognition of this relation between the heart and kidneys gives a satisfactory explanation to the popular belief that Bright's disease is on the increase in modern times, for many cases of primary Bright's disease were formerly regarded as cases of heart disease.

Of far higher value is the early recognition of Bright's disease before extensive lesions in the kidney have been produced, for it is only at this time that the disease process may be checked or cured.

Where the suspicions of the physician are once excited the diagnosis of Bright's disease is usually easy enough. The practitioner who makes it a habit to test the urine, if only by heat, in every case of chronic disease is rarely led astray. But the observation must be made with constant knowledge of the fact that while the presence of albumen in a general way denotes disease, the absence of it by no means of necessity excludes it, as it is exactly in the cases of renal cirrhosis in which for days at a time not a trace of albumen may show in the urine, healthy urine being voided from regions of the kidney entirely unaffected by disease, while the diseased parts are completely blocked.

In all these cases, as well as in those where the patient presents himself with a diagnosis of heart disease when no valve-lesion can be found to account for it, the kidneys should be suspected and scrutinized for symptoms immediate and remote.

Hypertrophy of the left ventricle reveals itself first by a slight deviation of the apex to the left. Obesity, or, later, anasarca or hydrops, may conceal or obscure the increase in size, but nothing may conceal or obscure the dislocation of the apex beat. A heart which shows its apicial stroke below or to the left of the nipple is either enlarged or out of place. Various extrinsic causes may also produce the condition, but they may be more or less eliminated in the history of the case. At least a pleuritic effusion or a tuberculous change in the lung-tissue, the most common extrinsic causes, should not long embarrass a diagnosis. Hypertrophy from endocarditis would distinguish itself by a characteristic bruit, as well as by accentuation of unaffected valves.

The increase in the size of the heart manifests itself by dulness, which extends to the left of the mammary line. In a pronounced case this increased dulness is readily recognized, but when slight in degree it is not so valuable as deviation of the apex. Perhaps it is not unfair to say that moderate hypertrophy of the heart makes itself manifest to most of us by the increased area, not of dulness, but of impact to the hand laid flat upon the surface of the chest, or to the face in auscultation of cardiac sounds.

The next most valuable sign of this hypertrophy is accentuation of the second aortic tone. The reason of this is obvious. The hypertrophied ventricle forces its blood into the aorta which is already distended, and the closure of the aortic valves follows under pressure with a quick short click—in short, with a distinct accentuation audible all over the heart, but in greatest intensity at the base, on the right of the sternum at the junction of the second rib. Now just as accentuation of the pulmonic valve sound, which is heard in its maximum intensity on the left of the sternum, points to hypertrophy of the right ventricle from mitral regurgitation due chiefly to endocarditis, does accentuation of the aortic sound point to hypertrophy of the left ventricle due chiefly to Bright's disease.

These four signs, increased tension of the radial

artery, dislocation of the apex to the left, increased dulness and impact, and accentuation of the second aortic tone, constitute the phenomena of this principal cardiac complication of Bright's disease. The importance of them becomes evident with the observation that they all exist at a time when there may be no subjective symptoms pointing to the heart.

But the compensation of this hypertrophy is not always exact. It may reach extremes in both directions, of excess and of failure. In otherwise healthy, vigorous subjects, more especially in those leading indolent or sedentary lives, or in children with abundant nutrition, it reaches a degree at times superior to the demand. Attacks of violent palpitation may then ensue with audible throbbing and marked increase of impact which makes itself manifest in yielding chest-walls as visible elevations or prominent bulgings of the surface. Hyperæmia of the brain occurs in these cases with intense headaches, and vertigo entirely independent of uræmia, and epistaxis may be frequent and severe. Strümpell reports two cases of fatal nose-bleed from this cause.

On the other hand, in constitutions enfeebled by original construction or by acquired disease, the cardiac hypertrophy may fail to develop, and in all cases sooner or later it must fall short under the gradually increasing demands. The nice compensation which has hitherto sufficed to obviate the main danger of nephritis, the retention or non-excretion of sufficient urine, becomes disturbed, and the signs of accumulation of toxic elements speedily ensue.

The first sign of a flagging heart is noticed in the pulse, which loses its hardness to become frequent and small. The great evil of stasis in the lungs from incomplete emptying of the left ventricle, accumulation in the left auricle and pulmonary veins, is counteracted for a short time by hypertrophy of the right ventricle which now sets in. But it is a work of Sisyphus that is thus thrown upon the right ventricle. It soon yields to the strain, and dilatation is evidenced in the attacks of bronchitis, dyspnœa, asthma, and œdema pulmonum which soon supervene. There is headache from anæmia of the brain, and general dropsy, which commences about the ankles and eyelids, mounts to the genital organs, and, invading the serous sacs, soon puts an end to the scene.

Bright's disease is subject to many accidents, the mention of which is superfluous here; but few of these accidents may occur while the heart is able to compensate the defect in the kidneys. So long as the increase in its size may enable it to force more blood through vessels yet unobstructed in the kidney neither dropsy nor uræmia may ensue. The gradually increasing hypertrophy of the heart is the reserve guard that is brought to bear upon the enemy in front. The successful therapy of Bright's disease calls, therefore, for a close regard of the condition of the heart. When the compensation is excessive, so to speak, the heart should be quieted, above all things, by rest, by the use of the bromides, possibly by an occasional dose of chloral, or, if necessary, by the application of an ice-bag over its walls. Gentle exercise is indicated after the acute explosion of the attack.

But it is the failure that is to be feared more than the excess. Here, above all things, is absolute rest to be secured. Where the means of the patient will permit, nothing is so valuable as a sojourn in a warm and equable climate. I have myself seen several cases of pronounced Bright's disease cured by a winter's stay in Florida or Nassau. For the mass of patients confinement, not only to the house, but to bed, secures, with an equable temperature, the best conservation of the force of the heart. Sooner or later appeal must be made to digitalis. It should be given first in small doses, lest it overstimulate, to be gradually increased according to demand, and discontinued, lest it exhaust—so soon as its effect is apparent upon the heart. The best preparation is known to be the infusion, freshly prepared from the leaves. It should be given to adults in doses varying from a teaspoonful to a tablespoonful, every two or three hours, with knowledge of the fact that it does not begin to show decided effects for twelve hours, and continues as long after its administration is stopped. Should it be continued long after its full effect is produced upon the pulse, the heart is tetanized, and the patient falls into collapse. Its diuretic action is much increased by the addition of the acetate of potash, but the infusion does not keep so well with this addition.

It is indeed a fatal mistake to administer digitalis while the heart is still adequate to the work of compensation. Neither uræmia nor albuminuria, of necessity, calls for digitalis. Dropsy is, in general, the best indication, because dropsy indicates inadequate compensation on the part of the heart, which is also, and often in the absence of dropsy, manifest in the condition of the pulse. Other symptoms of Bright's disease are infinitely better treated by appeal to the skin, wherein prolonged hot baths outrank all other remedies.

When the heart has fully responded to digitalis, and its further administration is contraindicated by the state of the pulse, tonic effects are best sustained by arsenic and iron; and when, finally, the heart no longer responds to digitalis, resort must be had for relief of symptoms to alcohol and morphia. But this day may be long delayed by a vigilant supervision of the heart, which, next to the secretion directly from the kidneys, most distinctly gauges the stage of the disease.

SOME CLINICAL FACTS ILLUSTRATED BY:

1. A CASE OF ABSCESS OF THE LIVER AND ULCER OF THE STOMACH.
2. A CASE OF ULCERATIVE ENDOCARDITIS.[1]

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There are certain diseases in which the conformity to the classical type is so uniform that a special description is superfluous, but there are others in which the diagnosis is rather made up by exclusion based upon an estimate of the rational symptoms, the physical signs, and the etiological relations. Cases of disease belonging to this class will always possess an

[1] Read before the Clinical Society of Philadelphia, March, 1886.

interest when considered independently of others, until their clinical delineation shall become as distinct as the differences which define enteric from typhus fever.

There are certain morbid processes which affect different organs, yet which possess clinical symptoms in common which make it reasonable to study their diagnostic features at the same time. As an example, I shall first describe a case of multiple abscess of the liver with perforating ulcer of the stomach. The specimens were taken from the body of Thos. G., a colored man twenty-nine years of age. The liver was very much enlarged, weighing six pounds. The entire right lobe was filled with small, round, abscess cavities, some as large as an orange, possessing ragged walls formed of the broken-down hepatic tissue, and containing laudable yellow pus. The peri-hepatic surface beneath the diaphragm was covered with lymph, but no pus. Beneath the left lobe of the liver, but without communicating with the hepatic gland, was found a collection of pus completely encysted by adhesions formed by the mesentery, which enclosed also the posterior wall of the stomach, the head of the pancreas, and the adjacent tissues. Communicating with this abscess cavity was a short sinus which terminated in an ulcer in the upper part of the posterior wall of the stomach, near the lesser curvature and in the middle zone. Without doubt the abscess was a secondary lesion developed after the perforation of the wall of the stomach. The spleen was enlarged, weighing sixteen ounces, but the other abdominal viscera were normal. There was an old cavity in the apex of the left lung with induration of the lower lobes, pleural adhesions, and evidences of recent pericarditis sicca, doubtless excited by the adjacent hepatic inflammatory processes. The pulmonary process had been latent or in stage of arrest prior to the outbreak of the disease in the abdominal organs.

The salient clinical features were that the patient entered the Hospital during the latter part of December, complaining of indisposition, but was discharged at his own request, and returned to his occupation as an hostler. He was readmitted to the wards February 1, 1886. Thus the existing disease must have developed during a period not more than four weeks. When admitted he gave the history of indisposition for the preceding two weeks with nosebleed, a few irregular chills, and slight diarrhœa, with weakness. The temperature on admission was 105°, subsequently ranging as follows:

Feb.	1,	105°	A. M.,	100°	P. M.	Feb.	11,	103°	A. M.,	100°	P. M.
"	2,	95.4	"	104	"	"	12,	102	"	106	"
"	3,	97	"	101	"	"	13,	95	"	105	"
"	4,	95	"	100	"	"	14,	97	"	101	"
"	5,	97	"	100	"	"	15,	99	"	104	"
"	6,	101	"	102.4	"	"	16,	96	"	102.4	"
"	7,	101	"	103	"	"	17,	97	"	97	"
"	8,	101	"	102	"			104			
"	9,	100	"	102	"	"	18,	104	"	96	"
"	10,	101	"	102	"	"	19,	99	"	97	"

For the first four days it was an intermittent temperature with a wide daily range of fluctuation, specially marked by fall of temperature on four occasions to 96° or 97°. For seven days the temperature was remittent in type varying between 100°–102°, sometimes 103°. On the twelfth day it rose to the highest point—106°, and subsequently fluctuated between 104° and 96° or 97° until the day of his death. During the last six or seven days of the illness the temperature was very irregular, showing its maximum between 12 midnight and 12 midday, but was low at 7 or 8 A. M.

The typhoid state was present during most of the illness, but although the liver was defined as enlarged there was never any pain or tenderness, no jaundice, no tympany, or, in fact, a single symptom to draw attention to the liver save the increase in size, which was not extreme or greater than is frequently observed in remittent fevers. During the illness there was no pain or tenderness over the region of the stomach, and only one or two stools daily. It was, however, noticed that the general symptoms of illness would markedly increase during a certain portion of the day, and that during the remission of the temperature the condition of the patient would become conspicuously improved. There was one slight chill, and once an attack of epistaxis. The symptoms of the pulmonary conditions were latent.

The diagnosis in this case was subject to debate until the death of the patient, typhoid or typho-malarial fever, and hepatic abscess being canvassed, but the entire absence of any special local symptom connected with the liver caused the latter diagnosis to be laid aside until the duration of the case rendered the above named fevers unlikely.

In the diagnosis of hepatic abscess it must be borne in mind that the condition is often latent. The symptoms have been classified under the rational and the physical signs in connection with an analysis of the etiological probabilites. With these methods of study, hepatic abscess must usually be recognized by exclusion, since the symptoms are by no means pathognomonic, and the diagnosis must be manifest or obscure in proportion to the presence or absence of signs or symptoms which tend to locate the process of the disease below the diaphragm.

One of the most important symptoms in this connection is the thoracic character of the breathing and the deficient diaphragmatic movement. This is due to the presence of local or general peritonitis, especially the peri-hepatitis so often observed.

In thirteen cases recorded by Carrington,[1] general peritonitis was observed in four, while in six the local peritoneal process was found, and yet in the case I have presented the abdominal distention was not noticeable, although at times the abdominal muscles were hard with rigid recti. Abdominal pain and tenderness might be considered an important symptom, and appeared in twelve of Carrington's cases, but was absent in nine.

The temperature in multiple hepatic abscess is especially valuable as a means of diagnosis, and I have compared the observations made by Carrington and others with my own, and have included the temperature recorded in certain cases of hypertrophic cirrhosis.

The special features of the thermometrical record

[1] Guy's Hosp. Rep., vol. 26, 1883.

worthy of remark were that there were many days on which the temperature was *subnormal*, and one should justly consider such a record as of high diagnostic value. But cases of multiple pyæmic hepatic abscess without pyrexia have been recorded by Murchison[1] and by Guitéras;[2] the temperature in a case of hypertrophic cirrhosis reported by the latter was noted carefully from October 21 to November 3, and found to be below normal in the mornings of ten of these days, once as low as 91°, once 94°, once 95°, and several times 97°. In this case, however, it is true that the evening temperature was not very high, only on four days being over 100°, and several times showing a record below 98°. Dr. Guitéras, in commenting on the temperature thought it might be due to an intermittent absorption of effete products from the liver, or an intermittent arrest of the oxygenating processes going on in the liver, an arrest that must influence the general temperature, if we remember that in health the temperature of the liver reaches 106°.

The case of hypertrophic cirrhosis by Carrington shows that the temperature taken for twenty-four days gave $100\frac{6}{10}$° A. M., 103° or 104° P. M. on several occasions, and was for twenty days fluctuating between 99° and 101°, with an occasional fall to 98°.

Murchison and Frerichs mention that there may be a slight degree of fever in hypertrophic cirrhosis, but seem to allude to the rise in a way that suggests their belief that it may have followed some imprudence of diet or unusual excess in stimulants or succeeded a chill. Thierfelder (Ziemssen's *Ency.*, vol. 9) alludes to a rise of temperature as an exceptional feature under the same general circumstances.

Carrington, in reporting fifty cases of cirrhosis of the liver uncomplicated by lesions which would of themselves cause fever, has found a considerable number of cases with a febrile movement similar to that recorded, and has published examples of the same, and this fact in connection with hypertrophic cirrhosis is of especial interest, since Fouquier observes that it is the peculiarity of parenchymatous organs and particularly of the liver to occasion no fever even when they are the seat of intense disease. It is, however, a fact that the pyæmic state is attended by wide fluctuations of temperature and in abscess of the liver a subnormal temperature is often observed. (See also vol. ii., *Trans. Pathological Society of Philadelphia*, Eskridge.)

Nancrede, of Philadelphia, has alluded to the fact that a subnormal temperature is characteristic of abscess in the brain substance. I do not know that his observations have been confirmed by others, yet the statement is very interesting when one is considering the question of abscess in the parenchyma of organs. In abscess of the liver it would also appear according to Annesley, Haspel, Louis, and others, as quoted by Frerichs, that this intermittent type of temperature may resemble malarial quotidian, tertian, quartan, or a double type, but differs in the irregularity with which the attacks come on, and the inutility of quinine.

It is especially noteworthy in consulting the records of cases that sweating although present at times, is neither a constant nor prominent symptom of hepatic abscess, and that rigors are far more often absent than present; and the fact recalls Fouquier's observation relative to the temperature in hepatic disease already cited. But if the abscess ruptures spontaneously or is opened, sweating becomes the common rule. The pulse and respiration are usually quickened in accordance with the exacerbations of temperature, but except during this period the pulse is slower in my experience than in other pyæmic or typhoid fevers.

In multiple pyæmic abscess of the liver, the more or less complete typhoid state with dry brown tongue and sordes on the teeth is quite a constant but not invariable accompaniment. Wasting is usually a prominent symptom throughout.

It will be remembered that in the case which formed the basis of this paper the liver was recognized during life as enlarged. A similar increase in size was observed in all of Carrington's cases but the last; the maximum increase in size measured from the third rib to one inch below the margin of the ribs, and subsequently increased from half an inch to an inch. But in hypertrophic cirrhosis I have frequently found the area of deep dulness to extend from the fourth interspace to two inches below the margin of the thorax in the line of the nipple. I incline to think that the enlargement of the liver in abscess is only a relatively important sign, since in addition to the forms of cirrhosis with enlargement considerable increase in the size of the liver is often recognized in prolonged remittent fevers.

The sense of fluctuation is seldom recognizable in multiple pyæmic abscess which, as shown in the specimen, are small or lie too deep, but obviously this symptom would have a high diagnostic value. The remaining symptoms often presented in reports of cases of pyæmic hepatic abscess would seem to me to possess a minor importance. In Carrington's cases, for instance, jaundice was observed only in one-third the number of histories. Curiously, while it was a marked symptom in two cases, one with complete obstruction of the ducts, it was also present in a case without this condition. It was slight in two other cases; in each of which, however, the urine contained bile, and in two others the complexion was sallow and yellowish. Symptoms referable to the stomach and bowels, such as vomiting or diarrhœa, would seem obviously connected with lesions within the alimentary tract, such as dysentery, gastric or duodenal ulcer. I allude especially to this point, because in my case serious gastric lesions were present without the occurrence of vomiting or symptoms of gastric distress, and this, notwithstanding that the administration of food and stimulants was pushed to its furthest limits.

Finally the duration of the illness in pyæmic abscess varies widely. In the thirteen cases of Carrington, eighty days was the longest, and five days the shortest period of duration; but the condition of the related viscera must govern the prognosis so far as time is concerned, and this coincides with the views of Murchison and Frerichs; also when the

[1] Diseases of Liver, p. 175.
[2] Transactions Philadelphia Pathological Society, vol. 8.

abscess opens into the viscera or externally life is much prolonged.[1]

Last of all, the etiology of the disease should be a prominent factor in any bedside study, although I confess I believe the etiology of an hepatic abscess is more frequently studied at the post-mortem table. The classification of Murchison, which divides hepatic abscesses into two varieties, pyæmic and tropical, is most satisfactory. In the first class are placed all those cases which originate from external injuries or surgical operations, from ulceration of the stomach, intestinal canal, gall-bladder, bile-ducts, cervix uteri, or from any other source of purulent absorption, and in which the abscesses are small, round, and numerous. It is this variety of abscess which is almost, if not exclusively, met with in the temperate zone. In addition to the foregoing cases the portal vein should always be examined for evidence of phlebitis or thrombosis. The etiology of many cases can be explained on this basis, as can be seen in the accompanying specimen.

The second class embraces those which originate in tropical climates, in which suppuration cannot be ascribed to dysentery or to a pyæmic source, or to mechanical violence, and in which it is exceptional to find more than one large abscess—in a word, this species of abscess would seem to follow acute idiopathic inflammation of the hepatic tissue.

The distinction seems chiefly to be an etiological one, for while in typical examples of either group the symptoms and physical signs are somewhat different, there are other cases where they are identical, and the distinction founded on anatomical conditions, such as large size, small number (one to three) of tropical abscess, with tendency to burst externally into the pleura, lung, or intestinal canal, as contrasted with the opposite character of pyæmic abscess are not always observable.

The specimens from the case of ulcerative endocarditis, which I shall also present with the narrative of the symptoms, have suggested thoughts which seem related to what has gone before, chiefly because the pyæmic type of temperature is a marked clinical feature in this process.

James G., aged thirty-eight, Irish, was brought to the Philadelphia Hospital, February 1, 1886. He had a severe chill while in the ambulance, and the temperature on admission was 105° F. He stated that for six months he had been broken down in general health, that he had contracted malaria in Ohio last spring, and had suffered occasionally from chills and fever ever since July. For the last six weeks he had been confined to bed with occasional chills with fever. His appearance was that of a fairly nourished man of large frame but quite anæmic. The spleen was found to be enlarged, a soft double aortic murmur was audible up and down the sternum. The temperature record was:

Feb.	1,		A.M., 105°	2 P.M., 104°	7 P.M.
"	2,	99.3°	" 99	"	
"	3,	98	" 106	"	
"	4,	102	" 102.4	"	
"	5,	100	" 101.4	"	
"	6,	97	" 103	"	

Death at 11.45 P.M.

[1] See statistics on this point in Frerichs's Diseases of the Liver.

He rose from bed five days after admission to go to the water-closet, and fell dead while crossing the ward.

The post-mortem examination was made sixty-two hours after death. On opening the heart, the aortic valves were found to be the seat of the principal lesion. The intercoronary leaflet was perforated near its right border. The torn and ulcerated surfaces were very ragged, and large fungous warty vegetations were attached to the surfaces, forming a bridge connecting the intercoronary valve to the left anterior valve. These vegetations appeared as though they had been recently torn through, and that the giving way of this part of the valve had been the immediate antecedent of the sudden death. The right valve had its posterior portion ulcerated through, and along the margin of the valve the border was thickened and soft. The left coronary valve was uninjured except at one small point to which was attached a filament of the vegetation already mentioned. The affected surfaces had a reddish-gray color. There were a few patches of atheroma near the valves, and the lining membrane of the aorta was in some places covered with lymph. The aortic arch was unaffected. The heart weighed thirteen ounces. The muscle was of good color, but soft and flabby. The right ventricle contained a buff colored clot which extended into the left auricle and pulmonary artery. The tricuspid and pulmonary artery valves were healthy. The left ventricle was dilated. The anterior leaflet of the mitral valve was somewhat thickened at its border. The spleen was more than double its normal size. Its consistency was increased, and its capsule thickened. There were no embolic infarctions.

The liver was fatty and cirrhotic, slightly smaller than normal. The kidneys were both examples of fatty and parenchymatous nephritis. During life the case was supposed to be one of chronic valvular disease with malarial cachexia, and with breaking down of compensatory hypertrophy. This diagnosis was based upon the statements of the patient, viz., that he had been exposed to privation, with irregular chills and fevers, contracted in the West six months before. Moreover, there was enlargement of the spleen, and an anæmic, sallow appearance of the surface of the body. There was at no time albumen or casts in the urine, and no dropsy. The post-mortem examination has necessitated a revision of this diagnosis to that of acute endocarditis involving the aortic valve, exhibiting extensive ulcerative lesions.

The process known as acute endocarditis has been subdvided and separately described under the designation of ulcerative or malignant, as opposed to the simple inflammatory forms. Etiologically the infections nature of the disease is the prominent characteristic, and involves the study of certain microorganisms which have been found in connection with the endocardial lesions. In the present case the length of time which elapsed before the post-mortem could be made, rendered the search for these organisms difficult. Anatomically considered, the lesions of acute endocarditis have been described as vegetative, ulcerative, suppurative, and sclerotic. In the specimens presented this evening we have destruction of the valves by ulceration with vegetations.

Although no primary or secondary centres of embolic infection were found, the designation ulcerative endocarditis seems the only proper one. The disease in general is known to develop under many distinct associations. Rheumatism would seem, from recent writing, to be an infrequent but possible antecedent. Ulcerative endocarditis is sometimes secondary to pneumonia. In the case reported in this paper, the predisposing condition may have been the rheumatic diathesis, malaria, or the debilitated condition of the patient's general health, doubtless secondary to the alcoholic habit, which was markedly indicated by the post-mortem lesions.

The history of the patient is suggestive of the obscure character of the rational signs If we suppose a case in which, during an acute disease, evidences of valvular lesion develop, or if, during the progress of a case of old valvular disease, evidences of an acute process supervene, the salient physical sign suggesting the diagnosis of ulcerative endocarditis is, in the first place, the temperature. This differs somewhat under its different causative relations. In the cases I have seen the pyæmic character has been usually present, and profuse sweating has been common. This characteristic has been noticed by Dr. Henry Thompson,[1] as second only to that of ague, and usually far beyond the average mark of phthisis or pyæmia. In this disease, just as in pyæmic hepatic abscess, the intermittent type of pyrexia simulating a quotidian or tertian ague has been described by Wilks, Bristowe, Coupland, Lancereaux, and Leyden. Various cases are also related in which the diagnosis was yet more puzzling by the clear history of ague, and the attacks were so characteristic that a suspicion of malignant endocarditis was not at first entertained. It was only after the failure of quinine and a variation in the character of the paroxysms that a diagnosis was reached. The interpretation of the temperature chart in this disease may also be rendered difficult by the duration of the symptoms, which in one case of ulcerative endocarditis was prolonged to four months, and in this connection the statements of my patient as to the commencement of his ill-health may be recalled. The temperature in ulcerative endocarditis is naturally affected by the complications, such as croupous pneumonia,[2] and the typhoid type of temperature may at times suggest the diagnosis of typhoid fever, just as a similar chart in multiple hepatic abscess suggests the same thought; but the irregular temperature, possibly the sweatings, the early typhoid state, and the general want of conformity to the well-defined picture of typhoid fever, suggest the differentiation, and it might be added that rigors rarely occur in typhoid fever, but are common in endocarditis. The remittent or typhoid temperature with moderate febrile movement (*i. e.*, one or two degrees) is often observed in those cases in which the recent malignant endocarditis is engrafted on the subjects of chronic valve disease,[3] but even in these cases the morning temperature is often 98°, and the duration of this phase of temperature may be very prolonged. Dr. Green refers to a case which lasted six months, and to another in which during eighteen months there were attacks of irregular fever. Osler writes, "I have noticed the febrile symptoms subside for weeks, to recur again with increased severity, and there are cases which render it probable that the process may subside entirely, or the temperature may be sustained at 102° to 103° till the end of the case."[1]

It would, therefore, appear that the peculiarities of temperature in ulcerative endocarditis afford very valuable grounds for diagnostic deductions, the most extensive and destructive atheromatous changes can occur without elevation of temperature, but withal Dr. Sansom[2] has referred to a case of ulcerative endocarditis in which there was no elevation of temperature throughout. The study of the compensative hypertrophy seems to me of decided value from the diagnostic standpoint. In the case I have reported we have presented a temperature with the foregoing characteristics, with an aortic murmur, but without the signs of compensative hypertrophy which should accompany a chronic lesion. The enlargement of the spleen noticed in the case I have reported is frequently observed, especially if the alternations in temperature are extreme. Pain, palpitation, or subjective cardiac symptoms may be present, but the process is often latent.

In a case of valvular heart disease with the temperature described occurring without association with rheumatism, and with the history of an acute illness, the diagnosis of ulcerative endocarditis is strongly suggested. Even in cases of chronic valve lesions the outbreak of fever with rapid disturbance of the balance of a previously perfect compensation without rheumatic history, presents the same suggestive diagnostic features. The probabilities in favor of the diagnosis of ulcerative endocarditis would be strengthened if evidences of embolism in the various viscera, especially in the pulmonary circuit, occur, or if cerebral symptoms are added to the picture.

[1] Lancet, 1880.
[2] Guitéras, Med. News, Nov. 14, 1885.
[3] Bramwell, Diseases of Heart, Edinburgh, 1884.

CONGENITAL TUMOR OF THE RECTUM.

By W. H. HAYNES, M.D.,
of New York.

In vol. 26, page 584, of the *Medical Record*, there is reported the following case of *congenital hemorrhoid*, perhaps due to an inherited predisposition or maternal impression, and of an external variety.

"A female child was born of healthy parentage. The mother, a primipara, had always been the picture of health excepting chronic constipation, and its natural result hemorrhoids, which have been many years a source of torment to her, and was naturally extremely aggravated by pregnancy. The child, otherwise well formed, presented at the verge of the anus on the right side a fold of skin projecting three or four millimetres from the normal level of the epidermis, and five millimetres long by three broad. This is covered with healthy normal integument of natural color and sensibility. It is then an *imitation* of a pile just where the mother's most annoying tumor was located. The little tumor seems to be merely an excess of skin at that point, and is in color and texture so like healthy skin

[1] Gulstonian Lectures, 1885.
[2] Lancet, vol. i. 1884.

as to show that it cannot be the result of inflammation. The mother was very anxious to know if her baby 'had piles,' and said she had been praying for months that her child might be spared an affliction which had caused its mother so much suffering."

I now take the opportunity of reporting a case of what may be termed an example of the internal variety of congenital hemorrhoids.

Mrs. H. was delivered of her second child, a female, which, on the day of its birth, was noticed to have hanging from the anus, at each stool, a globular tumor about the size of a small cherry-stone. It was dark red in color, and suspended by a short pedicle from just above the muco-cutaneous border of the anus within the rectum on its right side. No hemorrhage attended its appearance, and it was semi-solid to the touch. It was seized with a pair of forceps, which caused slight bleeding. A silk ligature was tied around the pedicle at its base. On the morning of the third day after this, the tumor fell off during a stool, and was thrown out with the excrement contained in the diaper. When I saw the child a few days later there was nothing unusual to be noticed about the anus, except a little point of ulceration just within its border, at the seat of the former location of the tumor. There was no reason to suspect any predisposing influence other than that the mother was afflicted with internal hemorrhoids.

I have nowhere been able to find a case recorded similar to either of the above.

Objections may be raised to the term *congenital hemorrhoids*, yet it certainly succinctly describes both the conditions found, better than any other that could be mentioned, although it may seem inconsistent to name a congenital growth after a disease, though they resemble each other in every respect except as to cause. It may be thought that the last was a case of polypus of the rectum; as to that, I would mention that its location and appearance were certainly not those of the soft gelatinous polypi met with in children, nor of the hard fibrous variety of tumor found in adult life, but it resembled more than anything else what is erroneously termed "hemorrhoids or piles," and which is found in both young and old.[1]

In neither case were the contents of the tumors noted. Both patients were females.

As to any predisposing or maternal influence, I would rather not speculate, as the observations are too few, and we are yet in the dark regarding the workings of nature in this direction.

HOSPITAL NOTES.

NOTES FROM THE PARIS HOSPITALS.

(Specially reported for THE MEDICAL NEWS.)

LOBULAR PNEUMONIA; SEPTICÆMIA; DEATH.

M. HARDY recently gave an interesting clinical lecture, at the Charité Hospital, on a case of lobular pneumonia followed by septicæmia, and finally death. The patient was sixty-four years of age, and he had never previously been seriously ill. During eight days before he entered the hospital he had been ailing—a pain on the right side of the chest and a cough. Nevertheless he continued to work up to ten days before his admission. When he was admitted he coughed a great deal; his sputum was viscous but not abundant. Sibilant and subcrepitant rhonchi were heard on both sides; the temperature varied from 102.2° to 104° F., and the pulse beats were from 100 to 110 per minute. The symptoms were somewhat contradictory; they indicated tracheo-bronchitis, and the stitch in the side was symptomatic of another condition. Fever increased, also the pulsations, from 110 per minute to 116; the patient was excessively prostrated, the eyes were bright, and the stitch in the side intensely painful. The sputa did not present the coloration peculiar to pneumonia, they were of a greenish-yellow color, but their consistency was that of the sputa of pneumonia. On auscultation subcrepitant rhonchi were heard in the right armpit; in the subscapular region bronchophony was detected. On percussion there was decided dulness. Respiratory vibrations were heard below the souffle and the sibilant rhonchi; they were also present on the left side. Bronchitis was diagnosticated, complicated with lobular pneumonia of the right side. The patient was dry-cupped and a Todd's potion administered. The stitch in the side disappeared, but on the fifth day after the patient was admitted (March 13) the temperature was 104° Fahr., and the pulse beat 120 to the minute, all the other local symptoms remained—dulness, souffle. M. Hardy ordered a full dose of tartar emetic every two hours, and directions were given to the nurse to discontinue the dose after three attacks of vomiting or three motions, or after three times vomiting and one motion. The last condition was realized and the emetic was no longer administered.

The patient considerably improved. His temperature fell to 102.4°, and the pulse to 110; local symptoms were also favorably modified, and the crepitant râles were changed to mucous râles. The improvement was maintained during two days; on the third fever returned, the temperature was 100.5° to 104°; on the fourth it rose to 105.9° in the evening; the patient was physically distressed and slightly delirious. He was carefully examined but no fresh symptoms were detected, no indications of a recurring pneumonia; the sputa were not viscous as at the onset of the malady, and only a slight dulness remained.

On the sixth day after the temporary improvement in the patient's condition, the prognosis was most serious; the morning temperature rose to 104.1°, the pulse 174 to the minute. Neither auscultation nor percussion revealed any indications of a return of pneumonia. The patient died the same night, twelve days after his entrance and twenty days after the actual onset of his illness.

The necropsy revealed the following condition: extreme congestion of both lungs, several patches of hepatization in the central region of the right lung. The spleen was considerably enlarged and diffluent, as in septicæmia; the kidneys enlarged and congested, resembling those in infectious nephritis; the liver likewise was much enlarged, presenting small detached patches of fatty degeneration; the gall-bladder contained three large green calculi. During lifetime the patient's skin was slightly jaundiced. The mitral valve of the heart was slightly altered, but that was evidently of long standing.

[1] Allingham, fourth Amer. ed., p. 52.

Thus the necropsy revealed all the characteristics of septicæmia. Death resulted from a general condition impossible to account for, and perfectly independent of the pulmonary affection. The patient was a bootmaker, a calling which does not throw any light on the etiology of his infectious condition, resulting in death.

Fatal Pneumonia attacking Husband and Wife; Pneumococci detected.—Alphonse and Marie P. were both servants at the Pitre Hospital; they had been there during four years; the husband had never been ill; Marie had been ill with quartan intermittent fever, with lung complications. Their bedroom was small but airy. Marie was suddenly seized with shivering fits and a stitch in the left side; she was very feverish; there were sibilant and loud râles on both sides of the chest; at the base of both lungs subcrepitant râles; in the armpits small subcrepitant rales; her voice had been excessively hoarse for three days. Eight days before her illness she complained of feeling ill, of having pains all over her; she had a bad cold in the head, and was in the sixth month of pregnancy. The diagnosis was influenza, with pulmonary congestion on the right side. Pregnancy explained the dyspnœa, which greatly distressed the patient. Todd's potion was prescribed and dry cupping.

The patient passed a good night. The next morning she was much better, but her husband, Alphonse, was seized with a shivering fit which lasted two hours; he had a burning, hot skin, temperature was 104.7°, and he complained of a constant pain in the left side; no cough, no expectoration; it was impossible to diagnosticate the acute affection from which the patient was suffering. The next day symptoms of pneumonia declared themselves, these became more and more serious, and the patient died on the fourth day of his illness.

Marie, the wife, was delivered of a seven months' child two days after she was taken ill. The child lived, and the mother continued to suffer from dyspnœa, and exhibited symptoms of bronchitis; she died four days after her confinement, the fifth day of her illness.

The treatment consisted of full doses of alcohol, dry cupping, and bromhydrate of quinine. A necropsy was not allowed by the relatives. The rapid and serious character of the pneumonia remains unexplained. The sputa contained numbers of Friedländer's lanceolate encysted microbes.

MEDICAL PROGRESS.

A HYGIENIC SCHOOL DESK.—DR. PRIESTLEY SMITH has devised a hygienic school desk which he describes in the *Ophthalmic Review* for June, 1886. The requisites for such a desk he formulates as follows:

1. The seat must be of such height as will allow the scholar's feet to rest flat upon the floor or footboard, and broad enough to support the greater part of the thigh.

2. The seat must have a back placed at such height as to fit the hollow of the back below the shoulder blades, and support the body in a vertical position.

3. The near edge of the desk must be just so high above the seat that when the scholar sits square and upright with elbows to the sides, the hand and forearm may rest upon the desk without pushing up the shoulder.

4. As used in writing, the desk must have a slope of 10° to 15° (about 1 in 5); as used in reading, it must support the book at an angle of about 45°, and at a distance of at least twelve inches from the eyes—sixteen inches is better (30–40 centimetres).

5. As used in writing, the edge of the desk must overhang the edge of the seat by an inch or two, in order that the scholar shall not need to stoop forward, and that the support to the back may be maintained.

6. Either the desk or the seat, or some part thereof, must be movable at pleasure, so that although the desk usually overhangs the seat the scholar may be able at any time to stand upright in his place.

7. The desks and seats must be of various sizes, in order that the foregoing conditions may hold good for scholars of various ages.

ON THE PLACE OF ORIGIN OF URIC ACID IN THE ANIMAL BODY.—In a paper read before the Royal Society, June 10, 1886, by ALFRED BARING GARROD, M.D., F.R.S., and reported in the *Chemical News*, the endeavor of the author has been to show the place of origin of uric acid in the animal body, and to ascertain which of the two hypotheses on the subject is correct, viz., whether uric acid is first present in the blood, and then secreted from the blood by the kidneys, or whether it is formed by the kidneys themselves. To enable him to prosecute satisfactorily many of his observations, the author has devised a new method for discovering the presence of uric acid in very minute quantities of blood.

The results of his investigations are embodied in the form of the nine following propositions:

Prop. I. Uric acid is secreted by the kidneys as ammonium urate; and in the case of birds and reptiles, whose urine is semi-solid, it is found in a definite physical form, more in the vitreous condition than in the truly crystalline shape.

Prop. II. Uric acid, when present in the blood, is found under the form of sodium urate; and, when deposited from the blood during life in any tissue, it is also as sodium urate in its characteristic crystalline form.

Prop. III. The quantity of uric acid daily secreted by different animals in relation to their body weights varies extremely. In some, as the carnivorous mammalia, the ratio may be less than 1 to 1,000,000, whereas in others, as birds, it may be as 1 to 85. In man it may be regarded as about 1 to 120,000.

Prop. IV. The quantity of uric acid contained in the blood of different animals has little relation to that secreted by the kidneys. In birds, secreting daily so large a quantity, the blood is often found to be as free from uric acid as it is in animals whose daily elimination of uric acid is excessively small.

Prop. V. When uric acid is absorbed from the alimentary canal, the blood becomes strongly impregnated, and, in fact, often almost saturated with it, so that its presence is readily discovered by any ordinary test.

Prop. VI. One cause of the appearance of an unusual quantity of uric acid in the blood of birds in health is the presence of uric acid in the water they drink, and occasionally in their solid food.

Prop. VII. When uric acid is taken into the stomach of man or other animals, the secretion of this principle from the kidneys is not increased, although at the time the blood may be rich in it.

Prop. VIII. Uric acid is found in varying quantities in the blood obtained from different veins in the same animal. It is found in larger quantity in that from the efferent renal veins than in that from the portal afferent, or from the jugular veins; and the same test which freely exhibits uric acid in the blood from the former often fails to show it at all in that from the latter two.

Prop. IX. The quantity of uric acid secreted daily by the kidneys of a bird is in close relation to the quantity of nitrogenized food taken during the time.

Having brought forward proofs to confirm these propositions severally, the author draws the following conclusions, viz., that every argument is in favor of the hypothesis that uric acid is formed by the kidney cells, in the form of ammonium urate, and that the traces of sodium urate found in the blood are the result of a necessary absorption, slight in amount, of the ammonium urate from the kidneys into the blood, and its subsequent conversion in that fluid into sodium urate.

Resection of the Rib for Gangrene of the Lung and Empyema.—Dr. K. Snellen, of Zeist, in Holland, having a case of pneumonia, which was followed by gangrene of the lung and empyema, aspirated, deferring opening up the cavity of the pleura for a few days. A fluctuating tumor being detected at the spot where the aspirator had been introduced, resection of the sixth rib, by the subperiosteal method, was performed, four centimetres being excised. When the pleural cavity was opened, an immense stream of extremely offensive fluid came away. The cavity was washed out, through a male silver catheter, with a three per cent. solution of boracic acid, and afterward with a one per cent. solution of chloride of zinc, the wound being covered with Lister's dressing. For the next two days the patient's condition was very much improved, but on the third day after the operation the temperature rose to 104.2° Fahr., and erysipelas of the face set in, which extended over the head and neck, the patient succumbing on the eighth day after the operation. It seems uncertain whether the gangrene was the direct cause of this erysipelas. The writer is disposed to think that in these cases it is better not to resect very early, but to aspirate first, so as to relieve pressure on the lung, and then, after waiting a short time for the patient's condition to improve, to evacuate and wash out the cavity. German literature on this subject is scanty. Schneider, of Königsberg, had a successful case of resection of the rib for gangrene, but the latter was of traumatic origin, being due to a gunshot wound, and therefore was less likely to be associated with so unhealthy a constitutional state as the present case, which was due to pneumonia. Dr. Snellen also suggests the practicability of repeated aspirations.—*British Medical Journal*, July 10, 1886.

Iodol in Ocular Therapeutics.—From considerable clinical and experimental experience A. Trousseau concludes that iodol is readily tolerated by the eye; that it may sometimes advantageously replace iodoform; that it ameliorates and sometimes cures ulcerative blepharitis, chronic conjunctivitis, and certain forms of vascular keratitis. It has been shown to be efficacious in phlyctenular keratitis and torpid ulcers of the cornea. In solution it favorably modifies granulations.

Trousseau, in this connection, recommends the following formulæ:

1.	Vaseline	5 parts.
	Iodol	1 part.
2.	Iodol	3 parts.
	Alcohol	35 "
	Glycerine	62 "

The pain resulting from the application of the solution is comparable to that caused by the ophthalmological use of nitrate of silver or sulphate of copper, and is chiefly due to the alcohol.—*L'Union Médicale*, May 22, 1886.

A Study of the Thyroid.—In an experimental research on the blood-forming organs and blood-formation in the *Journal of Anatomy and Physiology*, for July, 1886, Dr. John Lockhart Gibson summarizes as follows, the results of his experiments on the thryoid body:

1. That the thyroid has, properly speaking, no blood-forming function.

2. That any blood-forming action it may in some animals seem to have is due only to the presence of lymph-follicle-tissue in the thyroids of such animals.

3. That its function is in no way compensatory to that of the spleen.

4. That in dogs the total removal of the thyroid is always followed by death, after a definite train of nervous symptoms.

5. That in dogs the presence of unusually well developed aortic thyroid glands may prevent the onset of the symptoms.

6. That the removal of the whole thyroid from the human subject is unjustifiable, such removal being always, after a varying interval, followed by the development of the very serious definite condition called "cachexia strumipriva."

7. That in all excisions of the thyroid from the human subject at least a small piece should be left, a small piece appearing to be sufficient for the carrying on of the essential function of the gland.

8. That the function of the thyroid has special relation to the central nervous system, though what the true nature of such relation may be has yet to be definitely determined.

9. That myxœdema, cachexia strumipriva, and cretinism are probably one and the same disease, and are due to virtual or actual absence of the thyroid.

Olfaction.—Aronsohn (*Du Bois's Archiv*, 1886, Heft 394) has made a long series of experiments upon this subject in man. He found:

1. That the olfactory nerve was completely blunted for a time through the uninterrupted action of an adequate irritation in the course of a few minutes.

2. Completely exhausted olfactory nerves need at least a minute for complete recovery.

3. Different kinds of odors affect different territories of the olfactory region; one territory is excited to a maximum degree, a second territory in a lower degree, and a third territory not at all.—*Journal of Nervous and Mental Disease*, June, 1886.

Applications of Glycerine in the Treatment of Simple Ulcer.—Demarquay speaks highly of

the following mixture as applied to simple indolent ulcer:

Glycerole of starch	5 parts.
Sulphate of alumina and zinc . .	1 part.

Where the ulcer is painful he uses a dressing thus composed:

Sydenham's laudanum . .	4 to 5 parts.
Glycerine.	100 "

Such dressings are found to be of advantage whether the ulcer be scorbutic, scrofulous, or syphilitic.—*L'Union Médicale*, No. 55, 1886.

On Vaginal Extirpation of the Uterus.—Dr. Brennecke, in the *Zeitschrift für Geburtshülfe und Gynäkologie*, vol. xii. part i., states that he has removed the entire uterus through the vagina for cancer eighteen times, without a single death. His first principle is to make the parts as accessible to the surgeon's hand as possible throughout the operation. For this purpose he has devised a special uterine clamp-forceps, which takes up little room, and grasps the tender and friable uterine tissue firmly, yet safely. He takes special precautions against hemorrhage. He carefully cuts through the upper reflexion of the vagina, in front and behind, with a short-bladed knife, shaped like Küchenmeister's, and separates the cervix from the loose surrounding cellular tissue. Then he isolates the denser tissue on the sides of the cervix, bearing the uterine artery and its branches. The operator then grasps the uterine appendages. Each appendage is ligatured by means of a strong S-shaped needle, resembling that devised by Olthauser, which introduces the thread with comparative facility. The uterus is then strongly retroflexed, and pressed closely against the posterior wall of the vagina: by this manipulation the vesico-uterine fold of peritoneum is most readily separated without injury to the bladder. An elastic ligature is then applied to the broad ligaments, and they are cut through. Dr. Brennecke neither drains Douglas's pouch, nor applies any suture to its divided serous surfaces. An iodoform-glycerine plug sufficiently protects the escaping discharge from septic changes. After six or seven days the plug is removed, and the vagina is simply irrigated. Dr. Brennecke prefers total extirpation to amputation of the cervix, and even advocates vaginal extirpation for other incurable uterine diseases, in preference to abdominal section or oöphorectomy. His monograph is of great importance, and his method of operating can only be thoroughly understood by a perusal of the same. It need hardly be added that statistics of after-histories are even more important in this case than after ovariotomy and myomotomy. The most dexterous operator might, physically speaking, cut away a cancerous growth, the limits of which are tangible, if not visible, on a breast, removing an infinitely small area of healthy tissue around the growth. We know that he does not do so, but cuts very freely, and is able to use the knife boldly, thanks to the anatomical relations of the breast. In the case of the uterus, the greatest dexterity may fail to remove all the cancerous tissue, especially if it have spread to the connective tissue round the cervix, and cutting freely is out of the question; nor can the finger always detect the extension of the disease. This must never be forgotten when any operation on a cancerous uterus is contemplated.—*British Medical Journal*, July 10, 1886.

Drunkard's Epilepsy.—In view of Magnin's assertion that in France the frequent cases of epilepsy occurring in drunkards are due, not to alcohol but to absinthe, Moeli has reviewed the German statistics of the subject which may be thus summarized:

In Germany 36 to 40 per cent. of the subjects of delirium tremens a' also victims of epileptic attacks. An attempt to determine whether the occurrence of such attacks was correlated with the abuse of any special kind of distilled liquor was unsuccessful, but it was found that in twenty-six almost exclusively beer and wine drunkards only one was epileptic.—*Centralblatt für klin. Med.*, No. 11, 1886.

Gunshot Wound of Heart; Patient Survived Forty-two Hours after Injury.—Surgeon G. F. Nicholson, M.D., of Peshawar, India, relates the following case: Poor Dil, a resident of Bahadur Killi, a short distance from Peshawar, was shot through the chest about 9 o'clock on the night of the 9th of March, 1886; he was brought to the Egerton Hospital at 6 o'clock the following morning, and was then almost pulseless, had extreme difficulty in breathing, and occasionally coughed up blood. Shortly after admission to hospital he rallied slightly; but remained very low till death took place at 3 o'clock P.M. on the 11th of March.

There was a circular wound on the posterior fold of the left axilla, half an inch in diameter, and evidently leading to the lung, blood and air escaping through it. The bullet, a round one, was felt on the right side of the chest immediately underneath the skin, and was extracted through a linear incision; through this wound too blood and air escaped. On post-mortem examination the course of the bullet wound was found to be as follows: Through the seventh rib on the left side, some pieces of which were found in the left lung, then through the left lung, left and right auricles of heart, through the right lung, and finally through the fifth intercostal space on the right side. Blood was found in large quantities in both pleural cavities, and about one ounce of blood stained serum in the pericardium. There were two long rounded blood clots extending from the wounds in the right and left auricles into their corresponding ventricles; the lower portions of these clots were almost quite white.

That a man should live over forty hours after such a grave injury is very remarkable and important in a medico-legal point of view. Bryant mentions a case recorded in Circular No. 3 of the War Department of Washington, in which the right auricle was wounded, the patient surviving fifty hours.—*Indian Medical Gazette*, May, 1886.

How to Cool a Cellar.—A great mistake is sometimes made in ventilating cellars and milk houses. The object of ventilation is to keep the cellars cool and dry, but this object often fails of being accomplished by a common mistake, and instead the cellar is made both warm and damp. A cool place should never be ventilated, unless the air admitted is cooler than the air

within, or is at least as cool as that, or a very little warmer. The warmer the air, the more moisture it holds in suspension. Necessarily, the cooler the air, the more this moisture is condensed and precipitated. When a cool cellar is aired on a warm day, the entering air being in motion appears cool, but as it fills the cellar the cooler air with which it becomes mixed chills it, the moisture is condensed, and dew is deposited on the cold walls, and may often be seen running down them in streams. Then the cellar is damp, and soon becomes mouldy. To avoid this, the windows should only be opened at night, and late—the last thing before retiring. There is no need to fear that the night air is unhealthful—it is as pure as the air of midday, and is really drier. The cool air enters the apartment during the night, and circulates through it. The windows should be closed before sunrise in the morning, and kept closed and shaded through the day. If the air of the cellar is damp, it may be thoroughly dried by placing in it a peck of fresh lime in an open box. A peck of lime will absorb about seven pounds or more than three quarts of water, and in this way a cellar or milk room may soon be dried, even in the hottest weather.—*Scientific American.*

THE FATE OF EXTRAVASATED BLOOD.—DR. HUNTER has presented to the Scientific Grants Committee of the British Medical Association an experimental research thus entitled, of which the following *résumé* is given in *The British Medical Journal* of July 17, 1886.

The object of research was primarily to determine the share taken by the liver, the spleen, and the bone marrow, in the disposal of extravasated blood. The method of research was the transfusion of large quantities of blood into the peritoneal cavity, the blood being, in all cases, derived from an animal of the same species. The animals used were the rabbit and dog.

I. *Local Fate.*—1. The part taken by cells in the local changes going on around extravasated blood is of the greatest importance; the cells being of two kinds—those of leucocyte, and those of connective tissue origin.

2. The formation of blood-pigment from the red blood-corpuscles is mainly a "cellular" process, being effected through the agency of cells, either by inclosure of the corpuscles bodily within them, or by disintegration of the red corpuscles and then inclosure of their fragments.

3. In the process of so-called "organization" of blood-clot, both varieties of cells play an important part; but while both leucocytes and connective tissue cells are concerned in the disintegration of the red corpuscles, the former, in addition, effecting the removal of the *débris* from the seat of extravasation, the connective tissue cells alone are concerned in the process of formation of fibrous tissue by which ultimately the clot becomes replaced.

II. *Absorption.*—4. The absorption of extravasated blood applies not only to the serum of the blood, but also to the great majority of the red corpuscles which remain unentangled amidst coagula or the surrounding tissues.

5. This absorption is extremely rapid from the subcutaneous tissues, and especially from the larger serous cavities.

6. In the case of the peritoneal cavity, the absorption of the serum and red blood-corpuscles is effected almost entirely through the lymphatics of the diaphragm.

7. Under such circumstances the increase in the number of corpuscles within the circulation is observable one hour after injection, and steadily rises till it reaches a maximum about the second or third day, the time varying according to the quantity injected.

8. Extravasation *per se* does not affect the vitality of the red blood-corpuscles; if absorbed back into the circulation within a day or two, they continue to live as before.

9. Their longest duration of life under such circumstances (in the rabbit) varies from two to four weeks, this duration applying naturally to only a few of them.

10. The probable life-duration of the red blood-corpuscle in man is about three weeks.

III. *Ultimate Fate of the Absorbed Blood-corpuscles.*—11. The three great seats of blood destruction within the body, under pathological as under physiological conditions, are the liver, the spleen, and the bone marrow.

12. The nature of the process of destruction in the liver differs essentially from that in the spleen and bone marrow.

13. In the latter, the process of blood destruction is mainly a cellular one, comparable in all respects with, although much more rapid and complete than, the similar processes taking place locally at the seat of extravasation; in the former, the destruction is much more rapid than in the spleen and bone marrow.

14. After increased destruction of blood-corpuscles within the body, the local evidences obtainable are—in the case of the liver, increased richness of its substance in iron and the presence of granules containing free iron within the liver-cells; in the case of the spleen and bone marrow, increase in the amount of pigment containing free iron found within these organs.

15. In health, a definite relation is maintained between the amount of blood destruction which takes place in the liver on the one hand, and in the spleen and bone marrow on the other.

16. Any disturbance of this relation on the part of the liver is of much greater consequence than on the part of the spleen or bone marrow.

17. The former is, in all probability, the pathological change which lies at the root of progressive pernicious anæmia; as the latter is the probable cause of the anæmia of leucocythæmia.

18. The rapidity with which blood-corpuscles introduced into the circulation become destroyed is very great, a number equivalent to about four or five per cent. of the animal's own blood being destroyed daily.

19. The small quantity of blood transfusible into the organism in the case of man is therefore entirely removed from the body in a few days at most, probably not longer than three or four.

20. Transfusion of blood in the human subject, in cases of pernicious anæmia, with the object of increasing the number of corpuscles, is devoid of all physiological basis, and is simply adding fuel to the flame, since the fault in this disease is not one of defective formation of blood-corpuscles, but one of excessive destruction of those already present.

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THE SPONTANEOUS RUPTURE OF TENDONS.

IN connection with the subject of the treatment of divided tendons, to which we referred last week, attention may be usefully directed to the consideration of the causation of spontaneous ruptures of tendons. These, according to the classification of Volkmann, are distinguished from traumatic ruptures by the fact that they are caused by muscular action so slight as to be devoid of danger to healthy tendons. They correspond to the ruptures of muscles or bones which are caused by coughing, sneezing, or vomiting, and which are likely to occur after, or during severe constitutional diseases, such as typhoid fever, which lead to fatty or amyloid degeneration.

In otherwise healthy individuals a tendon may likewise rupture after it has been weakened at some spot by disease. In the experience of HAGER, as related in the *Berliner klin. Wochenschrift*, for May 31, 1886, teno-vaginitis, or what, in this country, is usually called tenosynovitis, is a frequent cause of such a weakening of a tendon. It would be interesting to collect some information from other sources in regard to this point, but the cases cited by Hager seem to support his opinion that chronic inflammation of the sheath of a tendon may lead to softening of the tendon itself, and make it liable to break under a comparatively slight strain. On the other hand, Hager's conception of the mechanism of the rupture of the tendon in his own and in like cases is open to criticism. He states that this occurred in his patient while he was pressing pieces of gutta-percha against a polishing wheel, the thumb being used to make the pressure, and being in a semiflexed position. This Hager understands to involve a relaxed condition of the extensor muscles and tendons. Herein, we think, he makes a very natural mistake. In most actions of the extremities, both the flexor and the extensor muscles are in a condition of almost uninterrupted activity. By coördination the exact effect intended is produced, and neither set of muscles overbalances the other. But there are occasions when, owing to some error in the operation of coördination, one set of muscles, or one muscle, or even only a part of a muscle, may suddenly contract in such a way as to disturb the previously existing harmony, and to cause quite unexpected and unintended movements, or even lead to rupture—a subject which has been admirably discussed by MAYDL in the *Deutsche Zeitschrift. f. Chir.*, Bd. xvii. and Bd. xviii., 1882 and 1883.

Hager attempts to explain the production of spontaneous rupture of tendons by stating that contraction of a flexor muscle may stretch the tendon of an extensor so much that it will give way, while the extensor muscle is still in a state of relaxation. Herein he states a paradox. A tendon cannot be put on the stretch without stretching the muscle beyond its limit of relaxation, and a muscle so stretched will resist and contract. This may be what actually happens in such cases, and would resolve the accident to a simple rupture caused by violent muscular action, differing in no essential from a rupture of the ligament of the patella by violent contraction of the rectus femoris. In fact, it seems as if the cramp which Hager describes as coinciding with the discovery of the loss of the power of extension in his case, might be attributed to a spasmodic contraction of the extensor muscle, causing a sudden increase in the tension of its tendon, and its rupture at a weak point. In this connection, we would suggest that the chronic tenovaginitis in Hager's case may have led to the formation of adhesions between the tendon and its sheath, with softening of the tendon below this point; and that an unusual contraction of the flexors, instead of breaking up the adhesions, resulted in breaking the tendon. Such a condition as this would make Hager's explanation reasonable.

The character of the union effected by operations by anastomosis or grafting, and the share in the result to be attributed to the union of the ends of a divided tendon with the cicatrix in the skin, are not yet clearly understood. It appears, from the observations so far recorded, that the tendons do unite. In a few cases it is stated that the cicatrix moved with every motion of the tendon, and it would not be surprising if this was always the case. But this does not militate against the opinion that the tendons are united; for it would be hard to understand how they could move without carrying

the cicatrix with them. If opportunity should arise to dissect a specimen in which this operation had been successfully performed, this question would be easier of solution. At present, the evidence seems to be in favor of the view which we have expressed.

OVULATION AND MENSTRUATION.

THE dependence of menstruation upon the ovaries is admittted by most physiologists, though different opinions are held as to the nature of this relation. The view that has hitherto been commonly received, and is still held by many, is that ovulation is periodical, the growth of an ovisac and its rupture corresponding with each menstruation. As the ovisac grows it presses upon ovarian nerves, and by reflex irritation causes congestion of the internal generative organs, especially of the uterus; the uterine hyperæmia results in hemorrhage from its mucous surface. Here the question arises as to whether this hemorrhage is facilitated by desquamation of the superficial epithelium, the result of a fatty degeneration, complete casting-off of the mucous membrane being rejected. According to some, this superficial desquamation does not occur until the close of menstruation, and therefore has nothing to do with the hemorrhage. Again, excellent authorities state that they have failed to find the proof of elimination of the superficial portion of the mucous membrane in menstruation. De Sinéty, in examining the discharge during the monthly flow, could not discover the least fragment of mucous membrane or of epithelium; so, too, in women dying while menstruating, he found the uterine mucous membrane entire in all its extent. Winckel says "Since Ruge and Moricke have found that during menstruation the ciliated epithelium of the uterine mucous membrane remains intact, an observation which we have repeatedly confirmed, the earlier view that during menstruation a fatty degeneration of the superficial layers was a cause of menstruation is incorrect."

Admitting these statements, the necessary conclusion is that the hemorrhage in menstruation occurs without destruction of any part of the uterine mucous membrane, and that the blood escapes from the superficial vessels, not by their rupture, but by diapedesis and through an intact mucous membrane.

The periodicity of menstruation can be most readily explained by attributing it to the ripening of an ovisac, for this, like other processes of growth, would naturally be supposed to require a certain time. Again, this interpretation of the connection between ovulation and menstruation corresponds with what we know of ovulation and "rut" or "heat" in animals, which is the analogue of menstruation. Nature's legislation is general rather than special, and it is not probable she would make one law relating to reproduction for animals in general, and then a special law for human beings.

But without pressing this point, let us see the proofs that are adduced to show that ovulation is not periodical. The results of Leopold's investigations are thus given by FOEKTISTOW in a recent number of the *Archiv für Gynäkologie*. Fully developed follicles, those already ruptured, and fresh corpora lutea may be found at any time during the intermenstrual period. These may not be present during menstruation. Hence, ovulation occurs without menstruation, and menstruation may occur without simultaneous rupture of the follicles. Ovulation, therefore, is independent of menstruation, and is not periodical. Nevertheless, while Leopold denies the dependence of menstruation upon periodical ovulation, he does make it depend upon the ovaries, and he regards its periodicity as placing it in the category of rhythmical manifestations—*e. g.*, the pulse, respiration, or ejaculation of semen.

The uterine hyperæmia results as a reflex from the ovaries caused, not by the ripening of an ovisac, but by the continued growth of several. Foektistow, in answer to the question, why does not menstruation occur more frequently, gives these reasons: Comparatively slight ovarian irritation is not sufficient to cause a reflex so soon. The essential, too, of the menstrual process is that anæmia follows hyperæmia, and irritability ceases. Equilibrium is thus restored, and to cause another reflex another sum of irritations is necessary, and these cannot occur at once. The changes in the uterine epithelium which began with the hyperæmia, pass away with the following anæmia, and the epithelium returns to its normal condition, a process which occupies more than one-half of the intermenstrual period.

Another theory of menstruation which is founded upon ovulation, is that of Lowenthal. According to him, the ovule reaches the uterus before impregnation; if it be impregnated, menstruation does not occur, but if it is not impregnated, it excites a uterine congestion which ends in hemorrhage. Winckel observes that the Achilles' heel of this bold hypothesis is that the death of the ovule can cause active congestion of the uterus. Further, this hypothesis is a revival of an old one—that is, menstruation results from the failure of impregnation, and is entitled to no more credence in its new than it was in its old form.

It may be, as stated by de Sinéty, that any positive theory of menstruation is, with our present knowledge, premature; nevertheless, it must be admitted that this function is connected with the ovaries, for if these organs are congenitally absent, or if they are undeveloped, menstruation does not occur. So, too, after double ovariotomy menstruation ceases. The exception to this rule cannot be

admitted until a careful post-mortem examination has proved that no fragment of ovarian tissue has been left behind in the lower portion of the pedicle, as has happened in some cases. Women have borne children after both ovaries were believed to have been removed. Olshausen performed, as he thought, ovariotomy; but the result being fatal, he found at the autopsy that neither ovary had been removed. Further, even if both ovaries have been completely removed, possibly there may remain a supernumerary ovary, a condition that Beigel's and Winckel's examinations prove to be far less rare than has been thought. Beigel found in 500 sections supernumerary ovaries 23 times; and Winckel has concluded, from his own examinations, that supernumerary ovaries are present in 3.6 per cent. Until in those cases of alleged normal menstruation, as stated by Foektistow, post-mortem examinations prove the entire absence of all ovarian tissue, the doctrine that menstruation depends upon ovarian action, will remain. So, too, it is in the highest degree probable that there is an intimate connection between ovulation and menstruation. At the same time it must be admitted that the two may be distinct, the one occurring without the other, though they are usually associated. Thus there may be occasional menstruations without ovulation, or the latter may occur without the former. Ovulation may begin before the first monthly flow and impregnation take place; during lactation it may occur without menstruation, and it may happen, too, after the menopause.

A FRENCH OPINION OF NITROUS OXIDE.

It is said that ideas travel slowly eastward, and this seems to be the case in regard to the use of nitrous oxide as an anæsthetic. In this country it is administered by dentists at almost every cross-road, and so freely—we might say recklessly—that it seems fair to infer that its inhalation is without danger. In France, it appears, its benefits are almost unknown. A recent article by Aubeau, which appears in *l' Odontologie*, for Dec. 1885, and Jan. and May, 1886, is devoted to a mild defence of its employment by dentists. A detailed account is given of its use in 20 out of 58 cases of tooth extraction, in all of which the urine of the patient was examined carefully after the operation, without the detection of a trace of sugar.

The number of the same journal for May, 1886, contains an interesting article by Hugenschmidt, a recent graduate of the Dental Department of the University of Pennsylvania, in which an excellent account is given of the free way in which nitrous oxide is used in the United States. In contrast to the few cases studied by Aubeau, Hugenschmidt mentions three American dentists who have administered the gas more than 300,000 times, and describes very well the method of its administration in this country, which has been so brilliantly successful. All this, however, seems too much for Aubeau, who adds to his *confrère's* article a note, in which he says that he can neither imitate nor approve the audacity of our countrymen, although their experience shows that "the use of nitrous oxide does not involve very formidable dangers." This conservative opinion does more credit to the prudence than to the enterprise of our French brethren, who seem to need just such information as is furnished in our American schools of dentistry, and as can be gathered from observation of the general practice in this country.

TAMPERING WITH THE QUARANTINE LAWS.

Notwithstanding the provisions for the closest scrutiny of vessels entering the Delaware, a case of deliberate infraction of the quarantine laws has taken place which wellnigh escaped detection. The captain of the Norwegian brig, "Grid," who permitted agents of a commission house to board and remain on his vessel in violation of law, and denied the act at the official inspection at the Lazaretto, deserves more than a reprimand. His prompt conviction before the court and the imposition of a fine and the payment of the costs of prosecution were fully merited.

The fact that the vessel was free from cases of sickness does not modify the gravity of the offence. The law distinctly prohibits all intercourse with vessels before an investigation by the Lazaretto officials, and unless it is rigorously enforced quarantine regulations are little more than a farce. It is to be hoped that this example of the vindication of the law will encourage its officers to renewed vigilance, and hereafter deter officious persons from tampering with the health regulations of the port.

REVIEWS.

Organic Materia Medica and Therapeutics. By James Young Simpson. Small 8vo. pp. 350. New York: J. H. Vail & Co., 1885.

This little book of 350 pages contains much to commend, and little to condemn. It essays to give a concise and condensed idea of the origin, natural order, habitat, synonyms, solubilities, preparations, general physiological and therapeutic action of each organic drug in the materia medica. In some instances the chemical tests and toxicology are also added. It embodies an account of a number of therapeutic agents which occupy a very prominent position in the armamentarium of some of our ablest practitioners, but which are only noted for their absence in our standard and more pretentious works on therapeutics. It is clear that our indigenous remedies merit a more prominent position than they at present occupy, and it is, therefore, pleasing to find many of them discussed in the general plan of this work. Among the most noteworthy of this class will

be found apocynum, bryonia, calendula, cannabis Americana, castanea, chimaphila, gossypium, phytolacca, pulsatilla, rhus glabra, salvia, sambucus, viburnum, etc. It contains some valuable hints on hypodermatic medication, and, with a few exceptions, it is brought down to the present time, and fulfils the aim of a work written "for ready reference on the organic materia medica." For the teacher it is as well adapted as for the student.

SOCIETY PROCEEDINGS.

THE AMERICAN OTOLOGICAL SOCIETY.

Nineteenth Annual Meeting, held at New London, Conn., July 20, 1886.

(Specially reported for The Medical News.)

Morning Session.

The President, J. S. Prout, M.D., of Brooklyn, called the Society to order.

Dr. S. Sexton, of New York, read a paper entitled

ACUTE AND CHRONIC PURULENT INFLAMMATION OF THE MIDDLE EAR TRACT, AND THEIR COMPLICATIONS.

It was based on the records of 2366 cases, which were divisible into three classes: acute purulent inflammation of the middle ear (739 cases); acute catarrhal inflammation of the middle ear (245 cases); and chronic purulent inflammation (1382 cases). The consideration of acute catarrhal inflammation was included in the consideration of acute purulent inflammation, since in the beginning the conditions were probably the same, although not always going on to suppuration. Out of this series of cases, 131 were selected on account of their gravity. Of this number, there were 12 deaths.

In no disease of man is a knowledge of regional anatomy more important than in disease of the middle ear. The speaker then gave a thorough *résumé* of the anatomy of the temporal bone, accepting the description of Prof. Leidy as the most satisfactory. The temporal bone at birth is peculiar, in the fact that the tympanum and mastoid antrum are about as large as they ever become in adult life. The petroso-squamosal suture is imperfectly closed.

The symptoms were next referred to. Brain symptoms, such as headache, vertigo, pain, delirium, nausea, and vomiting may occur, in consequence of middle ear disease without lesion of the cerebral structure.

The prognosis of purulent inflammation of the middle ear is favorable when non-meddlesome treatment is adopted, both as regards life and the preservation of hearing. Out of 20,000 cases of ear disease, where the patient had been seen at the beginning of the attack, no fatal case has occurred. Cases which have come under observation after severe symptoms have appeared have given 12 deaths. Some of the fatal cases occurred long after the ear trouble had abated.

In regard to treatment, he recommended incision of the drum-head. Trephining of the mastoid process has been advised by some authorities. Dr. Sexton took up a consideration of the indications which have been regarded as calling for the application of the trephine, and held that they were insufficient. From his experience he was led to believe that drainage could be best maintained through the natural channel.

Dr. Sexton also described

A NEW OPERATION FOR THE RADICAL CURE OF CHRONIC PURULENT INFLAMMATION OF THE MIDDLE EAR TRACT.

Since describing a form of chronic purulent inflammation of the attic in a paper read before the Society last year, it had occurred to him that something might be done with these cases by means of an operation. It seems especially desirable to cure these cases, when the ear remains simply a reservoir for purulent matter, liable at all times to infect the system. It is found, in the greater number of these cases, that the remaining portion of the conducting mechanism no longer serves to aid in the transmission of sound, but acts rather as an obstruction to drainage. Where the membrana flaccida and a portion of the ossicular chain only remain, the former often becomes thickened and everted, forming with the altered mucous membrane a pouch for the retention of putrescent matters which may slowly escape. Where granulation tissue or polypoid growths are present in the attic or antrum, the escape of secretions is still further interfered with. This produces long-continued and great irritation.

The author has observed that in a number of cases where the transmitting mechanism had been lost, a spontaneous cure followed; and it occurred to him that the curative action of nature might be imitated with advantage. Where drainage from the attic and antrum is interrupted, a cure can only be assured by an operation permanently clearing the passage outward from the tympanum.

Last year the operation was tried on a long-standing case of otorrhœa, due to chronic purulent inflammation of the attic. In order to avoid the danger of using an ordinary lamp in connection with the administration of ether, an electric light was used. The operation has since then been fully performed in several cases.

The first step of the procedure is to separate the membrana flaccida from the edge of the auditory plate and to remove any portion of the membrana vibrans adherent to the auditory ring. If the malleus and incus remain *in sitû*, it is well to divide the tendon of the tensor tympani muscle when present, where it leaves the handle just behind the short process and below the chorda tympani. The chorda tympani, when remaining, is then divided where it enters the tympani at the pyramid and also at its exit into the canal of Huguier The long process of the malleus, being also received into the glenoid fissure by means of this short oblique canal, along with the chorda, may be more or less detached at the same time. The detached tissues and ossicles should now be removed with the forceps. It will frequently be found that the incus, having been displaced, still remains. It may be removed with the attic scraper, which is to be introduced from below and passed up along the inner wall of the tympanum, when the distal extremity may be carried over the incus or malleus, if the latter bone remains, and by traction the ossicles can be detached. Polypoid masses, granulation tissue, and the products of inflammation may now be removed with the cutting curette or cutting forceps, and the parts dressed with a four per cent. solution of cocaine to relieve pain. There is usually free bleeding during the operation, often sufficient to protract it and increase its difficulties.

The effect of injury or destruction of the chorda tympani nearly always manifests itself in some way, but had never, in his experience, been a matter of serious import. Disturbances of taste sometimes follow the operation, but they gradually disappear and leave the sense of taste unaffected.

The drum should be well cleansed, and light dressings of boracic acid applied until healing takes place. The salicylic acid powder may be applied as freely as can be borne. In some cases this is irritating at first, but tolerance is soon established. It may then be kept up until the parts cease to discharge.

In the cure resulting from this treatment, a dermic transformation of the tympanum takes place; but mucus may occasionally gain admission from the Eustachian tube during recurrent head catarrh or on blowing the nose. This should be frequently removed with cotton-wool, and, if necessary, the drying applications renewed for a time. Where the incuso-stapedial connection remains he should not hesitate to perform this operation, unless a very considerable portion of the membrana vibrans is present. The instruments employed and some of the diseased ossicles removed were exhibited.

DR. C. R. AGNEW, of New York, said that he inferred from the speaker's remarks that he objects to the opening of the mastoid.

DR. S. SEXTON replied that he never had any difficulty in obtaining drainage in cases of periostitis externa by a free incision with a small tenotomy knife.

DR. AGNEW held that where the inflammation involves the mastoid cells, some portion of the external wall of the mastoid should be removed. The objection to the trephine is that it does not expose a sufficient area of the cancellated tissue of the mastoid. He did not see how the new operation which had been described will be of service in these cases.

DR. SEXTON said that the new operation was recommended in only chronic cases.

DR. H. KNAPP, of New York, said that the upper tympanic pneumatic cells resembled, to a certain degree, the frontal sinuses. They have a direct natural drainage through the infundibulum into the nose. When this is closed by disease, the lateral part of the sinus over the orbit dilates and the cavity is more easily reached and more effective drainage is obtained by opening the sinus from the orbit. In a like manner, we obtain in most cases easier and more effective drainage of the supratympanic cells by opening the mastoid cells with which they communicate.

DR. A. H. BUCK, of New York, then read a paper on

PAINLESS AND ONLY SLIGHTLY PAINFUL ULCERATION OF THE MEMBRANA TYMPANI, PROBABLY OF A TUBERCULAR NATURE.

Its object was to call attention to the features by which the early stage of tubercular disease of the membrana tympani could be recognized. Three cases had been seen by the author. The patients were in a condition of fair general health; one of them had disease of the vertebræ. No evidence of pulmonary disease was found in either of the three cases. Tinnitus and slight impairment of hearing were the first symptoms noticed.

In two of the cases which were examined at an early period, there were slight redness and swelling at the upper part of the membrana tympani and of the skin covering the bony wall. In a short time the infiltration extended into the entire posterior superior quadrant. The membrane became bulging and at the most prominent point a perforation established itself.

In the incipient stage, the distinguishing features are the tendency to localization in the upper posterior portion of the membrana tympani, the marked insignificance of the pain or even its entire absence and the intolerance to all but the simplest local measures.

DR. E. GRUENING, of New York, had seen a number of cases in which he was led to infer that the ulceration of the drum-head was due to tuberculosis. In one case, that of a young man, there were two openings in the inferior posterior quadrant of the drum-head. There was very little purulent discharge. The fact that there were two openings showed that the condition was not the result of perforation from accumulation. It appeared to be a melting-down process. In another case there were multiple openings, so that the membrane appeared to be honeycombed. These cases improved under treatment, but the openings remained.

DR. C. R. AGNEW had seen a number of cases which he considered to be tuberculous in character. He related the case of a young man with phthisis affecting the apices of both lungs. He stated that a short time previous he had begun to have slight ringing and a sense of dulness in the ear, that this had gone on for two or three days and then, when blowing his nose, he found that he whistled through his ear. In the ear complained of, there was an opening looking as though it had been made by a punch. The opening was elliptical. Within a few days the same thing occurred in the other ear.

DR. J. A. ANDREWS, of New York, stated that he had examined a large number of cases of middle ear trouble occurring in phthisical subjects, and some with a great deal of care, but had never found the bacillus tuberculosis.

DR. A. H. BUCK thought the failure to find bacilli did not exclude tuberculosis, for their chances of escaping detection are numerous. He had seen cases like those described by Dr. Gruening, but not in the early stages, and had, therefore, not considered them in his paper, as there was a possibility that they were due to previous ear disease.

DR. J. ORNE GREEN, of Boston, had been much interested in this paper, and recognized several characteristics which he applied to tuberculosis. The destruction coming on without pain and without discharge is very significant of the tubercular diathesis. He agrees with the speaker that in treating these cases only the very mildest measures can be used. Strong applications make the trouble worse. Twice, in cases of advanced tuberculosis, he had seen, on examining the drum membrane, little white glistening points about tne size of a pin-head, not secreting at all, and in one case with no congestion. In both cases the spots disappeared in a few days, and within twenty-four hours there was a clean punched-out opening in the drum membrane. This occurred without any discharge. He attributed this to isolated tubercles in the tissue of the drum membrane.

DR. A. H. BUCK, of New York, then made some remarks on

CERTAIN TECHNICAL DETAILS RELATING TO OPERATIONS ON THE MASTOID PROCESS.

He first referred to the objections which had been made to the drill. It had been stated that there is danger of plunging the drill into the lateral sinus, or even into the brain; he had, however, found no tendency for the drill to go astray. It had been said that the opening made was too small, but any sized drill might be used; he uses a drill one-fourth of an inch in diameter until the antrum is reached, and finishes the operation with a smaller drill. This gives a sufficient opening for drainage. When there is a large sequestrum, it is necessary to make a larger opening. After the use of the drill pyæmia and septic fever are rare. With a knowledge of the part to be operated upon, the drill may be used with perfect safety. It can be guided perfectly by resting the fingers on the bone. The conical shape of the drill also enables the operator to tell when its point has entered a cavity.

The objections to the use of the chisel were next taken up. When this is used the wound in the adjacent soft part must be larger, and the opening in the bone is more extensive, leading to a depressed cicatrix; more time is required in the operation, and it is not free from danger. These objections are, however, trifling, if the results of the operations are found to be more satisfactory than those following the use of the drill. A study of the statistics of both methods seems to show that there is nothing to warrant the statement that chisels and gouges are to be greatly preferred to drills in establishing opening into the mastoid process.

In operating with the drill, after making the opening, the author cuts out a little canal for the escape of the discharges, for the opening made by the drill is covered by the flap when it comes into position. For the first four or five days after the operation, the wound is irrigated once a day with a bichloride solution (one to two thousand).

Dr. Buck, in reply to a question, said that in his earlier operations he applied the drill a short distance in front of the vertical line. His present plan is different; a straight vertical incision three inches long is made; by this means he exposes the mastoid process where it curves into the meatus; the drill is then applied to the first flat surface. The only difficulty is in establishing the final communication between the canal and the antrum.

DR. J. ORNE GREEN said that he uses the drill almost entirely. He prefers to make a small opening at first, and is then guided by what is found. Some cases require a large opening, and in such cases the gouge and chisel will come into play; in the majority of cases a small opening is sufficient. In some of these cases the use of the dental engine is very applicable. He employs a modification of the engine, which may be screwed to a table; it is turned by a handle, and any one can furnish the power; no skill is required as in the engine worked with the treadle. Used in this way, the engine is of great service. The burrs can be used with the greatest delicacy. He uses a drainage tube, and keeps it in as long as possible.

DR. H. KNAPP, of New York, advocated the use of the chisel. In his first operations he used a drill, but had abandoned it. With the chisel one can at every step observe the condition of the tissue which he is cutting; with the chisel one has a perfectly smooth surface, rendering it easier to cleanse the wound; it is also very easy to manage the chisel. The principal reason in favor of it is, however, that it enables each step of the operation to be seen.

DR. H. D. NOYES, of New York, said that there is much less danger in the use of the chisel than of the drill. There is often great difference in the anatomical relations of the parts. The lateral sinus is not always found in the same place. With the drill there is danger of perforating the wall of the sinus, or of some important vein; with the chisel or the gouge one can explore the part, layer by layer, and ascertain how the parts are situated. This is a strong argument in favor of this instrument.

DR. J. A. ANDREWS, of New York, stated that in his operations he always used the chisel, but had always begun with the drill. He believed that the chisel is the best instrument, and can be used with more caution than the drill. He always makes a large opening, for he believes that a collection of pus should always be given free vent. Instead of the ordinary drainage tube, he uses a small rubber gutter to keep away the soft parts.

DR. E. GRUENING, of New York, stated that he had opened the mastoid process seventy-seven times. At first, he used the drill, and in acute cases the results were all that could be desired. The drill is, however, not applicable to all cases and he had since used the chisel. A small opening may be made with the chisel. What can be done with the drill can be done with the chisel.

DR. A. H. BUCK, of New York, remarked that from the direction which the discussion had taken it might appear that he was in antagonism with the chisel. He was not in antagonism with the chisel in those cases where a large portion of bone is to be removed. He left those out of consideration in his paper. Where a large mass is to be removed, it cannot be removed with the drill. The two instruments cannot come into conflict.

A communication in reference to the organization of

A CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS,

was presented and referred to a committee consisting of Dr. C. R. Agnew, Dr. H. Knapp, and Dr. John Green, to consider and report at the evening session.

EVENING SESSION.

DR. H. KNAPP, of New York, narrated the

FATAL TERMINATION OF A CASE OF SCLEROSING MASTOIDITIS AFTER CHISELLING OF THE BONE.

A man aged fifty years, had extensive suppuration in both ears after scarlet fever in childhood. The right ear became totally deaf, and the left, very hard of hearing, became deaf (hearing reduced to a quantitative perception of sound) by a recent attack of dizziness. Dr. Knapp found both tympanic membranes absent, the cavities sclerosed in both, pale in the right but congested in the left ear. Behind the left ear was found a cavity fully an inch deep, lined with immovable skin, the re-

sult of former exfoliation of bone. Three weeks later facial paralysis on the left side occurred. It disappeared in two weeks, under steaming and large doses of iodide of potassium. Two weeks later, the patient suffered with constant headache and nausea. The mastoid was opened to the depth of half an inch by chiselling. The bone was compact and very vascular. During the first two days the patient was sleepy; could not be aroused on the third, and died comatose on the fifth. No autopsy was allowed.

Death was due to traumatic meningitis. In regard to opening the bone in sclerosing mastoiditis, the prognosis is good when the sclerosis is the result of catarrhal or plastic inflammation, but bad when it is the consequence of old caries or necrosis. There are cases on the border-line, and even when the prognosis is bad, the indications may be strong. The operation will rescue a certain number of otherwise fatal cases.

DR. O. D. POMEROY, of New York, reported

A CASE OF ABSCESS OF THE MASTOID CELLS IN WHICH THE CHIEF INDICATION FOR OPERATION WAS ELEVATION OF TEMPERATURE.

A. S., aged twenty years, fairly robust, had a violent attack of otitis of the right ear which came on January 30, 1886. The following morning there was free discharge. February 1 he entered the hospital, when a large perforation was found; a poultice and warm douches were ordered. By February 4 the membrane looked almost normal. There was some pain in the occiput and a temperature of 103.6°. Ten grains of quinine with twenty grains of iodide of potassium, to be repeated in three hours, were ordered. This was followed by a reduction of two degrees in the temperature. The following day the temperature again went up, and it was apparent that a purulent process was going on. There was no swelling over the mastoid, and the pain was no greater than might be expected from a neuralgic condition. After consultation it was decided to open the mastoid process. A drill was introduced and from four to six drops of pus evacuated. After the operation the patient continued to improve until he was discharged cured.

DR. J. A. LIPPINCOTT, of Pittsburg, referred to a recent case in which a similar operation resulted in failure. Something over two years ago he operated in a case of sclerosing mastoiditis which had been suffering intense pain for twelve months, and which did not yield to alterative and tonic treatment. After the operation the patient remained well for thirteen months. The pain then returned and continued in spite of all treatment. Last March a second operation was performed, and a larger opening with the drill made. No benefit was produced.

DR. H. KNAPP stated that the cases which he had reported, where relief followed chiselling open a sclerosed mastoid, have remained well.

DR. CHARLES H. BURNETT, of Philadelphia, presented a paper

ON TWO CASES OF CHRONIC PURULENT INFLAMMATION OF THE ATTIC OF THE TYMPANUM, WITH PERFORATION OF THE MEMBRANA FLACCIDA, TREATED WITH PEROXIDE OF HYDROGEN.

In the first case no application had had the same good effect as the peroxide of hydrogen. Every other medicament had seemed to irritate rather than heal the inflamed mucous membrane. In the second case, the discharge, which had been very chronic, was promptly checked by the use of the peroxide of hydogen.

The chemical formula of this drug is H_2O_2, and by its affinity for albuminous matters, especially those of pus, it seeks every particle of this matter in a cavity like the middle ear, and thoroughly cleans the parts. The union with pus is shown by a copious foam, which boils out of the external ear; when the foaming ceases, and the peroxide returns clear, the diseased cavity has been thoroughly cleansed. In many cases this seems sufficient to effect a cure. Where there is a perforation in the membrana flaccida, the application is made by means of the tympanic syringe, the long and slender nozzle of which is introduced through the perforation at the attic of the tympanum. The peroxide is used undiluted.

DR. WILLIAM S. LITTLE, of Philadelphia, read a paper entitled

IN THE PHYSIOLOGY OF HEARING IS THERE AN OVERLAPPING OF EACH AUDITORY FIELD THE SAME AS IN BINOCULAR VISION?

Cases of one-sided deafness afford the opportunity of mapping out the auditory field for one ear, and it is found that with the watch at two feet from the ear, the tick can be heard about ten or fifteen degrees across the median line of the head. This gives more scope to hear sounds produced on the side of the head opposite the good ear. The tuning-fork is not heard even up to the median line on the side of the ear tested. The watch has been used in making the observations. If the field of one ear reaches beyond the median line to about ten degrees, we have, when both ears are normal, an overlapping of each field to the extent of fully ten degrees on either side of the median line in front, above, and behind the head. Each ear hears sounds in this area of twenty degrees. Outside of this area each ear hears singly. By means of this there is no need to turn each ear toward the source of sounds which reach the individual; the direction of sound is best found in this way for safety in walking, and maintaining the erect position. Sudden loss of hearing on one side puts the sufferer to great annoyance, as the ability to determine the direction of sounds is, in a measure, lost, the patient often looking in the wrong place when called. It is fully as perplexing, if not more so, than in a case of sudden loss of sight in one eye, making seeing dependent on one organ of vision.

The attempt to restore hearing should be directed, not only to obtain hearing in a line directly in front of the ear, but also to increase the area of hearing in the affected ear, or in both affected ears, till it reaches, if possible, the coalescence seen in normal ears.

The literature of the subject of audition and otology does not give any information on this point; too close a comparison between the eye and the ear cannot be made. The auditory and optic nerves respond to very different stimuli. The auditory nerve has no commissure or decussation of fibres like the optic, and has a less central position in the cerebrum.

DR. GORHAM BACON, of New York, read by title a paper on *Two Cases of Ear Disease due to Traumatism.*

The Society then went into

EXECUTIVE SESSION.

The proposition with reference to the organization of

A CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

was discussed, and favorably voted upon, and the following were appointed the Committee of Conference: Drs. C. R. Agnew, of New York; H. Knapp, of New York; John Green, of St. Louis; W. H. Carmalt, of New Haven; and George Strawbridge, of Philadelphia.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. J. S. Prout, of Brooklyn.

Vice-President.—Dr. Samuel Sexton, of New York.

Secretary and Treasurer.—Dr. J. J. B. Vermyne, of New Bedford, Mass.

Committee on Membership.—Drs. Gorham Bacon, W, S. Little, and E. W. Bartlett.

The following new members were elected: Dr J. B. Emerson, of New York; Dr. J. O. Tansley, of New York; Dr. J. L. Minor, of New York; Dr. Henry L. Morse, of Boston; Dr. Huntington Richards, of New York; and Dr. T. Y. Sutphen, of Newark, N. J.

The Society then adjourned.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-second Annual Meeting, held at the Pequot House, New London, Conn., July 21 and 22, 1886.

(Specially reported for THE MEDICAL NEWS.)

WEDNESDAY, JULY 21.—MORNING SESSION.

THE PRESIDENT, DR. WM. F. NORRIS, of Philadelphia, called the Society to order.

A communication with reference to the organization of a

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

was read, and referred to a special committee for consideration and report.

DR. H. KNAPP, of New York, then read a paper on

PYOGENIC MICROÖRGANISMS, WITH DEMONSTRATIONS AND EXPERIMENTS.

He made some general remarks with reference to the dependence of suppuration on certain kinds of microorganisms, the pyogenic bacteria, of which pure cultures had been obtained during the past two years. He exhibited these bacteria in numerous test-tube specimens on agar-agar, and also under the microscope. He also exhibited slides of different tissues of the eyes that had been infected with these germs. He showed two rabbits which he had operated on the day before for cataract, in the presence of members of the Society. Extraction had been made on the left eyes with clean instruments, and on the right eye with instruments contaminated with staphylococcus pyogenes aureus. The left eyes were free from secretion; the right eyes discharged matters profusely, and were in a state of destructive inflammation. He then operated on the other rabbits in the same way.

The four rabbits were exhibited the next day. The right eyes in all were suppurating; the wounds of the left eyes in three of the rabbits were in good condition. In one of the first two rabbits it was suppurating. This eye had become infected from the right eye of the other rabbit. They had been kept in the same box, and the operator had found them with their heads in contact.

In reply to a question as to the best method of cleaning instruments, Dr. Knapp said that in the institutions in Europe the instruments are placed in an antiseptic solution. This, however, has the disadvantage of dulling the edge of cutting instruments. His experiments had shown him that simple washing with water in the case of smooth instruments, followed by friction with a clean towel, renders them bacteriologically clean. Where an instrument has a groove, or is at all rough, it is much more difficult to clean. Instruments like forceps may be put in the antiseptic solution. It must be remembered that in the majority of our operations a certain quantity of infecting material is required to produce any effect. Where there is a free escape of liquid from the wound, the material is washed off; but where there is a sucking-in process, the danger is much greater.

DR. B. E. FRYER, of Kansas City, remarked that there was one antiseptic, lately come into use, which would probably not interfere with the edge of cutting instruments—that is hydro-naphthol. It has, however, not been sufficiently long under observation to enable us to say whether or not it will completely sterilize instruments. He suggested that chloroform would probably perfectly sterilize instruments.

DR. HUBBEL, of Buffalo, asked Dr. Knapp whether there were not certain conditions of the eye which favored infection of the wound after operation. He had recently, in a case of cataract in a man sixty years of age, operated where there had been a long-standing purulent inflammation of both conjunctivæ. He performed an iridectomy, following it in two weeks with extraction. Both operations were entirely successful and without accident, notwithstanding the fact that there was a constant purulent discharge, The only antiseptic used was a solution of boracic acid.

DR. H. KNAPP thought that a lachrymal discharge with a certain amount of conjunctivitis furnishes a favorable soil for the growth of bacteria. In operating in such cases, the discharge should be completely removed. A certain quantity of the pathogenic bacteria is required to produce infection. He had pricked the cornea to one-third or two-thirds its depth, and covered the wound with an emulsion of the bacteria. In only one out of every four or five did abscess develop.

DR. J. A. ANDREWS, of New York, said that he had frequently pricked the cornea and applied the staphlococcus pyogenes aureus, and had repeatedly seen recovery follow without suppuration or inflammation. Mere contact of the microbe with the wound is not always sufficient to produce suppuration, especially in the case of the cornea, where the discharge is liable to be washed off. Where the material has been introduced into the wound and kept there for a short time, he had never seen a failure.

In the cleaning of instruments, he used what he termed an aseptic fluid. It consists of clean water boiled some time. The principal value of antiseptic solutions in hospitals is that they furnish something one is sure is clean. Water is not always clean. He does not use boiling water in washing instruments; the water is boiled to render it aseptic.

Dr. C. S. Bull, of New York, presented

AN ANALYSIS OF ONE HUNDRED CASES OF EXUDATIVE RETINITIS OCCURRING IN THE COURSE OF BRIGHT'S DISEASE.

Only such cases were included in the report as had been examined by the writer and had been followed to their termination. All cases due to scarlatina or pregnancy were excluded. Out of 500 cases examined, only 108 fulfilled these conditions. The ophthalmoscopic examinations were made by the author, and the urine was always examined. In 54 of the cases, both eyes were affected when the patient came under observation, and in 93 per cent. both eyes were ultimately involved. Hemorrhages occurred in 69 cases. In 34 cases there were no hemorrhages. The hemorrhages were intimately connected with disease of the bloodvessels. Only one instance of color affection was observed.

The prognosis with reference to the duration of life is very unfavorable. The 113 cases reported were collected during a period of thirteen years; of this number 86 have died, 57 during the first year and 12 during the second year; 17 were still living, but 14 of these presented themselves within the last six months. One of these cases, however, was seen for the first time seven years ago. A rather unusual complication was seen in four of the cases. That was the presence of sugar as well as albumen in the urine. The amount of sugar was variable.

Dr. E. Gruening of New York, had collected over one hundred cases of this affection, and he found that none of them had lived over two years after the diagnosis of retinitis albuminurica had been made. In this class of cases he has included only those in which the typical stellate changes were seen in the maculæ of both eyes. He lately had seen this appearance in the macula of one eye in a patient who presents no evidence of Bright's disease. This was the first time that he had seen this exquisite change without signs of renal disease.

Dr. B. E. Fryer, of Kansas City, said that in these cases albumen is occasionally absent from the urine for a short time. In two such cases he had found that albuminose was present during the time that albumen was wanting.

Dr. David Webster, of New York, was satisfied that in rare instances these patients recover their general health and may live indefinitely. Some years ago he examined the eyes of a clergyman and found the typical appearances of retinitis brightii. He had been examined fifteen years previously, by a competent observer, who found the same condition and also found albumen and casts in the urine. The urine was examined and slight traces of albumen found.

Dr. O. F. Wadsworth, of Boston, said that where the retinitis albuminurica comes on during or immediately after pregnancy, he had seen the stellate spots in the maculæ entirely disappear. He had also seen typical stellate deposits in cerebral tumor and in what was supposed to be meningitis, but in which there was no albuminuria.

Dr. E. Gruening, of New York, said that the cases of retinitis brightii which are seen in private practice, differ very materially from those which are seen in hospitals. The patients who consult the oculist are usually those with the small contracted kidney, while the patients with the large, white kidney find their way to the hospital.

Dr. C. S. Bull, of New York, in closing the discussion, remarked, that he had excluded all cases where the albuminuric retinitis was due to scarlet fever or to pregnancy. He did not mean to say that the so-called stellate exudation in the region of the macula is typical of Bright's disease. He had seen it in intracranial tumor and in cases supposed to be meningitis. Retinal exudation other than stellate he had seen not infrequently in cases of large white kidney.

Dr. George C. Harlan, of Philadelphia, then reported a case of

THROMBOSIS AND PERIVASCULITIS OF THE RETINAL VESSELS.

The patient, a married woman, aged thirty-three years, came under observation June 5, 1886. Her father and a younger sister had died of Bright's disease, and her mother of paralysis. During the past two years she had had considerable headache. She had a miscarriage in July, 1881, from which her recovery was delayed. She had a second miscarriage, without special trouble, in January, 1886. There was no trouble with the eyes until May 7th, when she noticed dimness of vision in the left eye. This increased during the day, and the following morning there was only light perception in this eye. She was examined two weeks later by a surgeon, who pronounced the condition one of embolism. There was no suspicion of specific disease. There was no uterine trouble and the heart-sounds were normal. The urine had a specific gravity of 1.009, contained some albumen, but no tube casts were found. Examination of the eyes showed no light perception in the left eye. The media were clear. There were hemorrhages scattered through the retina. Some were striated, extending in long streaks along the vessels. There were three groups of white spots at the macula. With one exception, all the vessels of the retina were converted into white bands. The exception was a small artery having an independent origin. The vessels were of nearly normal size. Five or six weeks later, the hemorrhages had been absorbed, but there were no other changes. In the right eye there were several small hemorrhages and two filmy white patches; these subsequently disappeared. In July she had a slight attack of paralysis on the left side. Examination of the urine showed some albumen and hyaline tube casts. The rapid onset and the occurrence of blindness within a few hours, seemed to exclude the possibility of disease of the vessels. Embolism would not account for the condition. The speaker suggested that the partial blindness for the first few hours was due to hemorrhage, and that the complete blindness coming on later was due to thrombosis. Thrombosis of a whole series of vessels is, however, rare. Another possible explanation is that there had been, for some time, disease progressing in the outer walls of the vessels without giving rise to sufficient disturbance of vision to attract attention.

By way of comparison a second case was described, in which the affection seemed to be a perivasculitis. It was that of a negro woman who had been partially blind for a long time. The right eye was the seat of a dense

cataract. In the left eye V. $= \frac{20}{C}$. The lens was hazy and the disk pale. Extending upward, there was a large artery converted into a chalky band. Two smaller arteries exhibited the same condition in places.

Dr. William S. Dennett, of New York, then described

A NEW TEST-TYPE.

He called attention to the fact that, although for twenty-five years the schools of the civilized world had been under the observation of oculists, who all agree that great good would be done by periodical examinations of the eyes of scholars, and although such examinations are very simple, the internal inertia of existing institutions has always prevented any continued action on the part of the schools. Among the laity there is absolutely no knowledge of what normal eyes should be expected to see. A card was presented which was designed for the use of educational institutions. It contained one set of letters, and a statement underneath of the exact distance at which these letters should be seen. The desire was expressed that this, or some similar card, should be placed on the wall of every schoolroom in a conspicuous place, so that it should become of necessity a familiar object and a standard of measurement that would be remembered through life.

Dr. Hasket Derby, of Boston, read a paper on

THE POSSIBLE RETARDATION OF RETINITIS PIGMENTOSA IN THE YOUNG.

This affection is, as a rule, considered incurable, leading gradually to complete blindness. In America the disease is exceedingly infrequent, the author having seen it but 27 times in 13,000 eye cases. In 1881, a boy, three years of age, was brought to him from Western Virginia. It was observed that toward night vision diminished. There was no history of blindness in the family. Five years later he came again, accompanied by his sister, seven years of age. Both children were night-blind, and presented the evidences of retinitis pigmentosa. Under the use of the constant current, there was improvement. A similar case of improvement under the use of the constant current, under the care of Dr. Standish, was reported.

The object of the paper was to invite discussion as to the use or non-use of such eyes for educational purposes, and as to the possibility of adopting measures for delaying the progress of the organic change.

A third case, that of G. W., aged fourteen, was described. He presented the typical appearances of retinitis pigmentosa. Non-use of the eyes and the application of the constant current were recommended. He was subsequently advised by others to use the eyes freely. In five years vision diminished from three-tenths to one-tenth. This rapid progress of the disease, it was thought, might have been aided by the use to which the eyes had been subjected.

Dr. William S. Little, of Philadelphia, reported one case of retinitis pigmentosa occuring in a deaf-mute, in which decided improvement in vision took place under the use of the faradic current. The improvement continued for two years without change. He then went West and seven years later he was doing well, but he could not see quite as well at night as before.

Dr. L. Webster Fox, of Philadelphia, had treated a number of cases successfully. He had found that it was the negative pole that produces the good results. He also noted that if there was no enlargement of the field after three applications, improvement was not to be expected. In all the cases in which improvement took place, the bloodvessels seemed to increase in calibre, and the night-blindness correspondingly diminished.

Dr. George C. Harlan, of Philadelphia, had recently seen two well-marked cases of this affection; one in a boy of seventeen years, and the other in his sister a few years older. His faith in any form of treatment being weak, he advised that the eyes be used as long as sight remained. From his experience he was led to believe that there is likely to be a culmination of the disease about puberty.

Dr. George Strawbridge, of Philadelphia, said that he had tried the use of electricity in this affection thoroughly some ten years ago. He did not obtain benefit in a single instance, and placed more reliance upon the occasional use of alteratives, as bichloride of mercury and iodide of potassium, looking on these cases as probably of syphilitic origin.

Dr. Samuel Theobald, of Baltimore, had seen temporary improvement from the continued use of phosphate of iron, quinia, and strychnia. One of these cases was seen some ten years ago, when eight years of age; he retains sufficient vision to enable him to perform his duties as a travelling salesman. There was no intermarriage of the parents of this patient, but there was a history of a similar trouble in other members of the family.

Dr. S. D. Risley, of Philadelphia, remarked that it had seemed to him that, with the hypodermatic use of strychnia, he had secured improvement in the central sharpness of vision. He had frequently seen improvement follow the use of this drug, but, so far as he knew, it had never been permanent. As regards the age at which the affection may develop, he had seen it occur under five years of age, in two children of the same family.

He reported the case of a young man with retinitis pigmentosa, with marked contraction of the field, and asthenopia principally due to hypermetropic astigmatism. He was treated with alterative remedies for two years, during which time the difficulty had not materially increased. To relieve the asthenopia a weak solution of eserine, sufficiently strong to contract the pupils without causing peri-orbital pain, was ordered, and under its use vision decidedly improved. He has used this solution more or less constantly for the past two years, and finds that when he is without it, he is distinctly more uncomfortable.

Dr. O. F. Wadsworth, of Boston, referred to a case which, in connection with those reported, shows the variable course the disease may pursue when left to itself. A young man, twenty-four years of age, a divinity student, was seen in 1873 presenting typical retinitis pigmentosa so far as the opthalmoscopic appearances were concerned. He had well-marked night-blindness. He continued his work, and when seen eight years later, vision was about the same, but the visual field seemed to have decreased to a slight extent.

DR. EDWARD JACKSON, of Philadelphia, read a paper on

THE EQUIVALENCE OF CYLINDRICAL AND SPHERO-CYLINDRICAL LENSES.

It was intended to demonstrate the laws of such equivalence, showing that equal crossed cylindrical lenses are optically equivalent to a spherical lens of the same refractive power. Crossed cylinders of unequal refractive power may be regarded as crossed cylinders of equal refractive power combined with a third cylindrical lens, or, as their equivalent, a spherical combined with a cylindrical lens. It was proven that any two cylindrical lenses with their axes placed obliquely the one to the other, might be represented by crossed cylinders—that is, cylinders with their axes perpendicular to one another, or by their equivalent in the shape of a sphero-cylindrical lens; hence that any number of cylindrical lenses with their axes placed in different directions are optically equivalent to a single sphero-cylindrical lens. To determine the sphero-cylindrical equivalent of any two cylindrical lenses, construct a parallelogram, two sides of which are proportional to the refractive power of the given lenses, the angle included by those sides being double the angle made by their axes. Then the diagonal which cuts this included angle will be proportional to the cylindrical portion of the desired equivalent; and to get the spherical portion it is only necessary to subtract one-half of this cylindrical equivalent from half the sum of the cylinders given.

DR. WILLIAM S. LITTLE, of Philadelphia, in speaking with reference to the practical side of this question, said that in about one-half of his cases of mixed astigmatism the patients have preferred crossed cylinders to their equivalent sphero-cylinders. In using a sphero-cylinder it is essential that it be accurately centred.

The committee to whom was referred the consideration of the proposition with reference to the organization of a

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS,

reported the following resolutions, and recommended their adoption:

Resolved, That a committee of five be appointed by this Society, and be authorized to confer with committees from other medical societies with regard to the organization of a convention or congress of such societies, and report at the next meeting of this Society.

Resolved, That it is the sense of this Society that its welfare would be put in peril by any alliance or coöperation which would interfere with its autonomy or independent meeting.

These resolutions were adopted, and the following committee was appointed: Drs. O. F. Wadsworth, of Boston; C. S. Bull, of New York; George C. Harlan, of Philadelphia; Samuel Theobald, of Baltimore; and B. E. Freyer, of Kansas City.

AFTERNOON SESSION.

DR. GEO. STRAWBRIDGE, of Philadelphia, reported

263 CASES OF CATARACT EXTRACTION WITH PARTICULAR REFERENCE TO THE AFTER-TREATMENT.

Two hundred and twenty-three of the above cases had never been reported. The operation was performed by the modified flap extraction, in which the incision lies midway between the old Gräfe incision and the corneal flap incision. It avoids the risks of both of these methods, and gives a sufficiently large opening. An iridectomy in an upward direction was always performed. Formerly the lens was removed by pressure with the spoon directly on the cornea, but fearing injury to that tissue, during the past year pressure with the finger on the closed eyelid had been substituted. The results had been as follows: Successful cases, 85.2 per cent.; partial successes, 8.1 per cent.; and failures, 6.7 per cent. Those cases were classed as failures in which fingers could not be counted at a distance of one or two feet. In twelve cases absolute loss of the eye occurred. These were, with one exception, lost by choroiditis. The other case was lost by choroidal hemorrhage.

After the operation the eye was thoroughly cleansed, and for the past two years a solution of boracic acid (two per cent.) had been employed. The speaker's former plan had been, after applying a bandage, to put the patient to bed in a darkened room, keeping him in bed for four to six days. Two-thirds of the cases had been treated in this way. He had found this plan exceedingly debilitating in elderly individuals, and during the past eighteen months he had gradually given it up, so that during the past six months the patients were, practically speaking, kept in bed only twenty-four hours. The room is as light as any ordinary room. The first element in the treatment of old people is to make them comfortable. If, at the end of twenty-four hours, everything is doing well, the patient is allowed to move about the room. No unsatisfactory result had followed this plan.

The speaker had employed in some cases cocaine. In one case, in which a four per cent. solution was used, a violent purulent inflammation began within twenty-four hours and resulted in total loss of the eye. Subsequently he had employed it without unpleasant results. His plan is to use a two per cent. solution, drop in one drop, wait a minute and drop in a second drop, and use only two drops. As much anæsthesia as is desirable is thus obtained. He had never employed any antiseptic except the two per cent. solution of boracic acid, and while this does no harm, he though that it did little good. He attaches much importance to stimulation after the operation. In elderly people the use of whiskey is begun a few hours after the operation.

DR. H. KNAPP, of New York, read a paper on

CATARACT EXTRACTION WITHOUT IRIDECTOMY.

Of the new operative measures which he had seen in Europe there were two above all others which he thought worthy of being tried; one was extraction without iridectomy, and the other, advancement of Tenon's capsule. Of the fourteen cataract extractions which he had made since his return, the last six had been without iridectomy. Three of these had made ideal recoveries, no reaction, clear, central, movable pupil, neither an anterior nor a posterior synechia. The other three had more or less posterior synechia, leaving the pupil ragged and somewhat obstructed, yet the adhesions were simple, not spreading a pseudo-membrane over the area of the pupil. Vision was fair, and could be rendered excellent by a simple needling, if remaining insufficient.

He followed Panas in the performance of the opera-

tion, large section along the upper margin of the cornea, free laceration of the capsule, expulsion of the cataract and its remnants, reduction of the iris with a probe if it did not occur spontaneously. Before the operation the eye is fully cocainized, the lids and conjunctival sac washed and sterilized. The instruments and hands are treated in the same way. After the expulsion of the lens, a small quantity of an antiseptic is injected into the anterior chamber along the whole section and eserine instilled into the conjunctival sac. The speaker believed that the chief advantage of this operation lies in the possibility of keeping the wound perfectly free from foreign substances, including portions of the lens, capsule, and iris. How often anterior and posterior synechiæ occurred, what the final visual results were, and how frequently after-operations would be required, were questions which could only be answered by extended statistics.

Dr. David Webster, of New York, presented a

REPORT OF FIFTY CASES OF CATARACT EXTRACTION.

In seventeen cases the operation was done under ether, in twenty-seven, under cocaine, and in six no anæsthetic was employed. The results were: Successes, 82 per cent.; partial successes, 12 per cent.; failures, 6 per cent.

Aseptic precautions were used in all the operations. The best vision obtained in any case was $\frac{20}{XV}$. Dr. Webster advocated the extraction of both lenses at the same sitting in judiciously selected cases.

Dr. Webster also related the history of a case in which he had relieved the pain in a glaucoma absolutum by lacerating the infratrochlear nerve—Badal's operation.

Dr. Henry D. Noyes, of New York, reported the

DEATH OF A PATIENT ON THE FIFTH DAY AFTER THE EXTRACTION OF A HARD CATARACT.

The operation, which was perfectly satisfactory, was performed on Sunday morning and the patient suddenly died the following Friday morning. After the operation a bandage was applied and the patient put to bed. The dressing was not disturbed until the third day. Everything seemed to be doing well, and the patient made no complaint. On Friday morning she suddenly complained of a feeling of prostration and within half an hour she died. The only lesions found at the autopsy were dilatation of the heart and insufficiency of the valves of the left side. The death seemed to have been due to heart failure. The contents of the orbit were removed *en masse*. A certain amount of force was used, and, as a consequence, the corneal wound was partially opened. The eyeball had been hardened and ten sections made to demonstrate the kind of union which we have at the end of the fifth day. Inspection of the eye before death showed that the union was smooth and apparently perfect. What is particularly interesting about these specimens is that the union appeared to have taken place exclusively through the medium of the epithelial layer.

Dr. David Webster, of New York, said that the more he had employed cocaine the more did he see the necessity of using as little as possible in cataract extraction. He attributed the bad results in some of his cases to the use of too much cocaine. In his later operations he has done about as Dr. Strawbridge has recommended.

Dr. B. Joy Jeffries, of Boston, had found it of decided advantage in cataract extractions to instil cocaine into both eyes. One drop a minute or two before the operation is sufficient. It renders the eye quiet, and the patient can keep it open.

Dr. C. R. Agnew, of New York, thought that the best plan to follow in the use of cocaine is to instil a drop of a four per cent. solution, and hold the lids open to allow it to become diffused; then wait three or four minutes; the eye may then be touched with an instrument to ascertain whether or not the sensitiveness has been sufficiently obtunded. One or two drops are usually sufficient, and employed in this way the possibilities of evil effects are reduced to a minimum. It had never been his custom to incarcerate patients in a dark room after a capital operation on the eyes.

Dr. W. F. Mittendorf, of New York, had seen two cases of serious complication after cataract, which he attributed to the use of cocaine. In one the eye was lost, and in the other it came near being lost. The cocaine solutions were fresh, but they were strong and used freely. He thought that one reason bad results are obtained is because the eye is left exposed to the air for several minutes after the introduction of the cocaine solution. Recent observations show that the injurious action of cocaine is especially upon the epithelial layer, and in shutting off the supply of lymph fluid. The epithelium suffers very rapidly from lack of moisture, especially if the eye is kept open. It has been recommended to close the eye immediately after the introduction of cocaine. He uses a weaker solution than a two per cent., making it fresh every day, by the addition of one or two grains of cocaine to half an ounce of water. Since using the weak solution and taking the precaution to close the eye after its instillation, he has had no serious accident.

Dr. Wm. Thomson, of Philadelphia, remarked that the first time he used cocaine he directed the apothecary to make a two per cent. solution; instead he made a solution of two grains to the ounce. Three operations were performed with perfect success, and it was not found out until afterward that a mistake had been made. Since then, he had not considered it necessary to use strong solutions.

Dr. Emil Gruening, of New York, said that last summer he went to de Wecker's clinic to see him perform cataract extraction without iridectomy. He learned that he employed this method only in the winter-time. The reason for this was that during the hot weather of summer the patients are very restless, and as a result prolapse of the iris frequently occurred. He decided to try the operation, and in May, 1886, performed his first operation. Half an hour before the operation he instilled a few drops of a solution of eserine (half a grain to the ounce). A few minutes before the operation the eye was cocainized with a four per cent. solution. There was no difficulty in removing the lens. After the operation eserine was again instilled, and the eye bandaged. Forty-eight hours later, the bandage was removed. The patient made pressure on the eyeball. The anterior chamber was emptied, and the iris prolapsed. He was compelled to remove the iris. There

were no further accidents. A few days later, he operated on a second case with perfect success. In regard to the action of cocaine, he referred to a case of an acute exacerbation in chronic glaucoma. The eye was very painful and very hard. He directed that a six per cent. solution of cocaine should be instilled. A few minutes later, on opening the lids and introducing the speculum, a bladder arose between its blades. Examination showed that this was the epithelium of the cornea, which had become raised. The operation of sclerotomy, which was about being performed, was postponed; but it eventually became necessary to remove the eyeball.

Dr. H. D. Noyes, of New York, had performed extraction without iridectomy in six cases. He had used cocaine. The cleansing of the anterior chamber and the removal of lens matter had been accomplished partly by manipulation and partly by irrigation. For washing out the conjunctival bag and removing matter from the anterior chamber, he uses a rubber bulb holding two or three ounces, and terminating in a short nozzle. It is not necessary to introduce a nozzle between the lips of the wound. The iris may be satisfactorily replaced by a stream of water. He used eserine, not as a preliminary, but as a dressing, in the form of an ointment containing two drachms of eserine to the drachm of vaseline. A small portion of this is placed in the conjunctival sac, and spread on a piece of linen covering the eye. In three of the six cases there was perfect union, with a central circular pupil and accurate vision. In one case intraocular hemorrhage came on twelve hours after operation, but this might happen under any method. In two cases prolapse of the iris was found on the seventh day, when the eye was carefully examined for the first time. The prolapsed iris was excised, and in one case the result was entirely satisfactory. In the second case no satisfactory vision was obtained.

His impression from this series of cases was that, while the operation deserves attention, the cases must be carefully selected. If the patient had but one eye, he would prefer to operate on it with a preceding iridectomy, and not without. He believes that a satisfactory result can be more certainly secured with iridectomy. As to the visual result, while theoretically it would be better, it is not always so.

Dr. Samuel Theobald, of Baltimore, in a case in which cocaine was used where there was stricture of the nasal ducts, has invariably observed that after the instillation of cocaine, the cornea, which has been clean and bright, becomes dull, presenting the appearance as though it had been roughly handled. He had noticed a similar result in another case.

Dr. B. E. Fryer, of Kansas City, said that in about ten cases he had used cocaine in this way: Inserting one drop every half hour until four or five drops have been used. In this way the iris becomes completely anæsthetized, and where we wish to perform iridectomy this is important.

Dr. B. Alexander Randall, of Philadelphia, remarked that there was one point not distinctly referred to in the discussion, and that was, whether or not inflammation of the iris is more frequent after this operation than where iridectomy is done. In the thirty or more cases which he saw at the clinic of Panas two years ago, there was not a single case of iritis. There were, however, several cases of prolapse. Panas claimed that there was less inflammation than after the ordinary operation. It is proper to say, with reference to iridectomy, that, with a small iridectomy, the pupil may be as movable and as central as in the operation described.

Dr. B. Joy Jeffries, of Boston, reported

SOME MEDICO-LEGAL CASES.

He first read the law of Massachusetts in regard to the examination of railroad employees and others for color-blindness, and stated that it was practically a dead letter, and could not be enforced. In order to make it efficient, some standard test must be adopted. Many instances in which the law had been evaded or ignored were given. Many cases were cited, particularly of railroad engineers and steamboat pilots, where lives of many passengers had been endangered by this defect.

Dr. Charles A. Oliver, of Philadelphia, exhibited and read a description of

A NEW SERIES OF LOOSE WOOLS FOR THE SCIENTIFIC DETECTION OF SUBNORMAL COLOR-PERCEPTION (COLOR-BLINDNESS).

They comprise ninety-seven bundles of Berlin worsteds, composed of five large principal test-skeins, twenty small pure match skeins, and seventy-two small confusion skeins. To each small skein there is attached a metallic bangle, bearing the exact equivalence of the color's composition, tint, and shade, stamped upon it in a way that can only be understood by the surgeon. The colors are all of equal relative intensity; the wools are all of one manufacture, and have been dyed with vegetable materials.

The following advantages are claimed for the series: That there are five tests; that the wools are loose, and all of the colors of the same relative intensity; that each skein has its value expressed, so that the skeins can be employed by any intelligent layman; that accurate notings of color changes can be made for future comparison, and proper verbal and written expression can be given; that by reason of the wools all being of the same grade of manufacture, and all the colorings obtained from vegetable dyes, no results can be gotten from the supplemental sense of touch; and, finally, that a black surface is employed, and no definite order of testing need be pursued.

Dr. Wm. S. Dennett, of New York, exhibited a set of Holmgren's worsteds which had been made into spheres, and to each one a number was attached. It was thought that considerable elegance and some advantage would result from using Holmgren's or Thomson's test in this manner.

(*To be concluded.*)

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, May 24, 1886.

The President, James T. Whittaker, M.D., in the Chair.

(Continued from page 109.)

THE MEDICAL TREATMENT OF ECHINOCOCCUS.

Dr. A. B. Thrasher remarked that there is unanimity of opinion among authors with reference to the therapeutic treatment of echinococcus, namely, that it is unsuccessful. The case reported by Leidy was referred to in evidence of the futility of medicinal treatment. In

that case, after the subject had been injected with a strong solution of the chloride of zinc, and after all the tissues had become thoroughly blanched, there was still evidence of living hydatids. The hygienic care of the patient is of importance, and the subject of prophylactic measures opens a fruitful field of study.

Dr. R. B. Davy agreed with the last speaker that very much cannot be said in praise of the treatment of echinococcus with the administration of medicines by the mouth, some authorities to the contrary notwithstanding. When the echinococcus disease has been diagnosticated beyond a peradventure, it is customary to prescribe something to be taken by the mouth, whether or not it becomes necessary to pursue other treatment. In the event of the death of the endocyst during the continuation of said treatment, and such a thing may occur from purely accidental causes, the drug used gets the credit for the cure. In this way, Hjaltelin claims to have cured twenty-two persons with the tincture of kamella; Heckford caused the disease affecting the liver to disappear in five weeks with twenty-seven grains daily of the iodide of potassium, and Reeb, with the same remedy, thought he had several times cured echinococcus of the brain. The salts of mercury, turpentine, etc., have been spoken of as possessing similar power over this parasite, but most authorities doubt the curative effect of any drug administered by the mouth. Of the forty-six cases reported by Heller as occurring in English hospitals, thirty-six were cured by puncture alone with the escape of part of the fluid. In the remaining ten suppuration occurred, making a larger opening necessary, and two of these cases died. The fact that so many of these cases should terminate favorably after the escape of often a small amount of fluid, is very significant. The condition is not at all unlike that which might be brought about by the action of a hydragogue cathartic, active diuretic, or diaphoretic. By agents of this kind the blood stream is robbed of its water, and the cyst is in turn deprived of some of its fluid through the absorbents. The tension of the fluid within the cyst being thus reduced, the parasite might be made to die without further interference. I have no desire to be understood as seconding the treatment of echinococcus by the administration of drugs, except in cases where the aspirator needle, the surgeon's knife, etc., are not applicable, yet I cannot help believing that the benefits attributed to them are brought about in the manner described, and not by any special deadly influence over the parasite. Cobbold, in discussing the effect of drugs administered by the mouth, describes the dense ectocyst and the difficulty or impossibility of reaching the vital endocyst with blood sufficiently charged with any anthelmintic to produce any effect upon it. Hearn says that the medical treatment of hydatids in no way affects the prognosis; and Todd affirms that the only cure for them is their evacuation. Notwithstanding these dogmatic assertions, it must be accepted that trivial influences often affect the vitality of the parasite, and that its death sometimes takes place without any assignable cause. It is, therefore, well to bear in mind that medicines internally, as well as electrolysis, aspiration, and the injection of certain drugs directly into the sac are not to be lost sight of in our hurry to plunge in the bistoury and terminate the case. While prompt treatment is important in rapidly growing cases, slow ones should be handled with moderation and caution, for it is often better to resign the parasite to natural decay than to subject the patient to unnecessary risk. In the hands of Fagge and Forster, electrolysis seems to have been used with advantage, while with other observers the injection of iodine, carbolic acid, gall, etc. has found favor. In ruptured and discharging hydatids of the lung, where the breath is liable to become very offensive, an efficient deodorizer is called for. Heller advises inhalations of turpentine to overcome this difficulty, but it is hardly apparent that this agent should be superior to zinc chloride, carbolic acid, iodine, etc.

In hydatid of the brain or heart, where it is possible to arrive at a diagnosis, the slender hope attached to the use of medicines by the mouth is about all that is left and should not be minimized. In these cases a lesson might be learned from the rest and starvation treatment of aortic aneurism. So much then for the medical treatment of echinococcus. As may be seen, it is not entirely devoid of importance, yet stands much beneath the possible aid of the surgeon. The importance of every kind of treatment stands eclipsed by prevention.

The prophylaxis of echinococcus is to the treatment of the disease, Dr. Davy continued, as life is to death—the one filled with smiling possibilities, the other loaded with gloomy forebodings and disappointments. By proper attention to this subject many observers think that the disease may be actually stamped out. In Iceland, where one-sixth of all deaths are from this cause, Krabbe affirms that twenty-eight per cent. of the dogs are infested. These dogs often come into the closest contact with their masters. The dog's intestines are the acknowledged home of the tænia echinococcus, and in passing with the feces ova may adhere to the anus, to be in turn transferred to the dog's nose and mouth. After this, food or drink shared with the dog is a possible source of infection. This intimate association between dog and master could hardly be possible in our country, yet the equally dangerous habit of kissing the pug or lap-dog is common enough. To avoid these dangers of infection, Leukhart advises that all dogs be kept aloof from slaughter houses and that suspicious offal be burned. Leared says that dogs should be purged at intervals with anthelmintics and cathartics, and Cobbold advances the idea of disinfecting their feces with boiling water. Still-water to which dogs have access should not be used for drinking, as even in this country it can never be regarded as safe. Meat inspectors of cities and towns should thoroughly understand the habits and haunts of these parasities—as they do not—and be able to act intelligently in the effort toward exterminating them. The eating of uncooked meats should for this and other reasons be carefully avoided.

(*To be concluded.*)

NEWS ITEMS.

MONTREAL.

(*From our Special Correspondent.*)

New Health Bill.—The new Health Bill which was passed before the dissolution of the Legislature, is a very weak affair. Neither political party wished to pass

a very stringent bill, as the Provincial elections are close at hand. The *habitants* strongly object to compulsory vaccination, and the ecclesiastical authorities to compulsory registration of births. So both these most important clauses of the bill were dropped, and the consequence is that we now have an emasculated health bill which can be of but little service to the country.

Laval and Victoria.—The dispute between these two medical schools is not yet settled, and appeals are still being made to Rome to decide in favor of one or other school.

Within the last month several professors of the rival schools have sailed for Europe, and it is believed by many that their destination is Rome, and their object to plead the cause of the schools they represent before the Pope, who, apparently, is the director of even medical education in French Canada.

Hydrophobia.—Dr. Rodier, who has been sent over to France by the Provincial Government of Quebec to learn Pasteur's methods of inoculation for rabies, has arrived in Paris, and has been well received by the great scientist. It will seem strange to outsiders that whilst other countries are sending their ablest and most experienced men to investigate and report on Pasteur's methods, the Province of Quebec should be satisfied to be represented by a young man who has but just graduated (1886), who could have had no experience, and who, so far, has shown no special aptitude for scientific research; but here, as well as elsewhere, politics is at the bottom of the evil.

Whilst on this subject it might be mentioned that no case of hydrophobia has occurred here within the memory of man, the disease being unknown. One of the Governors of Canada is said to have died of rabies many years ago, due to the bite of a pet fox; but with this exception no other case is known. Some deny that this was a case of rabies.

Canada Medical Association.—The annual meeting takes place in the city of Quebec on the 18th and 19th of August, under the presidency of Dr. Holmes. A large number of papers have already been promised, and a very successful meeting is expected. A number of prominent men from your side of the line have promised to be present.

College of Physicians and Surgeons of the Province of Quebec.—The triennial meeting of the College was held here on the 14th instant.

The amendments to a medical act submitted by a committee of the Council were submitted and approved. The amendments provide for a compulsory examination in all subjects before a board of examiners, English and French, appointed by the medical schools and Council. No medical degree will entitle the possessor to take out a license as heretofore, but all persons, without exception, will have to pass an examination in both primary and final branches not less than four years after having passed the preliminary examination in classics, mathematics, literature, and philosophy.

Heretofore holders of Canadian or British diplomas were entitled to registration as qualified practitioners, provided they had studied four years after passing a prescribed preliminary examination. The amendments also provide that the Province of Quebec shall be divided into six electoral districts, each district to elect its own representatives to the Council.

The following office-bearers were elected for the new Council:

President.—W. H. Hingston, M.D.

Vice-Presidents.—Hon. Dr. Ross and J. L. Leprohon.

Secretaries.—F. W. Campbell, M.D., for Montreal; A. G. Belleau, M.D., for Quebec.

Treasurer.—E. P. Lachapelle, M.D.

Registrar.—L. La Rue, M.D.

In consequence of a provision in the new Medical Act in Great Britain, holders of British qualifications will not be entitled to practise without examination in the Provinces of Ontario or Quebec.

Stale Eggs.—At a recent meeting of the Council of Hygiene, in the Department of the Seine, France, a question was raised as to the fitness for food of eggs which had been laid for a considerable length of time, and which offered certain peculiarities, such as external and internal spots, and the yolks having a strange color, and adhering to the shell. Various considerations on the subject had been submitted to M. Chatin, with the request that he would inform the Council whether, in the case of eggs so affected, it would be necessary to prohibit their sale. The reporter stated that eggs which had spots about them were not necessarily damaged, and that they might be used by bakers and confectioners for glazing bread, and some kinds of pastry, whilst the whites could be used by leather-dressers, who employ albumen in the preparation of articles made of leather. He added that eggs which were really damaged could easily be distinguished on account of the smell. Under these considerations, M. Chatin thought there was no necessity to forbid the sale of them. That a stale egg may, in some cases, be safely eaten, like high game, is quite comprehensible; but game, as well as eggs, cannot be eaten when putrid beyond a certain extent, probably because germs of extreme septic virulence, resisting the gastric juice, have been developed. In the earlier stages of decomposition, both these articles of diet appear to remain innocuous, the game being toothsome to the many, the eggs to the few.

Accouchement of a Turkish Princess.—Dr. J. A. S. Grant was called upon to attend a Turkish Princess in confinement, she having heard that he would administer chloroform. Everything connected with the delivery passed off successfully and it is considered a most auspicious introduction of chloroform and medical men into the harems for confinements.

The Strength of Spirit of Nitrous Ether.—A question of some importance to the medical profession came the other day before the Thames Police Court, when Mr. John Read Morrison, a practitioner, of 57 Cannon Street, St. George's-in-the-East, who keeps a shop, was summoned for selling a quantity of spirit of nitrous ether not of the nature and quality of the article demanded, the drug being deficient in nitrous ether to the extent of eighty per cent. Mr. William Raines, sanitary inspector to the parish of St. George's-in-the-East, said that on June 10th, about 11 o'clock, he called at the

shop and asked for two ounces of spirit of nitrous ether, which the defendant served him with, and for which he paid 8*d*. Witness then told him that it would be analyzed by the public analyst. The analyst's certificate showed that the drug was deficient in nitrous ether to the extent of eighty per cent. Mr. Young, who defended, submitted that there had been no offence. The article was pure, and the deficiency was caused by decomposition and evaporation. Mr. John Beckett, assistant to Dr. Tidy, at the London Hospital, said he had analyzed the sample of the drug submitted to him by the defendant, and found it to be pure. The nitrous ether was liable to decomposition and evaporation. There was certainly a deficiency. Every time the bottle was opened, some of the nitrous ether would go out. Mr. Hannay said it was too important a question for him to decide at once, and he adjourned the case for a week.

FEMALE PHYSICIANS IN THE FIFTEENTH CENTURY.—Dr. Horowitz, of Frankfort-on-the-Main, has (*The Jewish Chronicle*, May 14, 1884) published a work, entitled "Jüdische Aerzte in Frankfürt," in which the learned author mentions the interesting fact that, as long as four hundred and fifty years ago, Jewesses practised medicine in that city; they especially devoted themselves to ophthalmia. The female oculist, Dr. Zerlin, whom we meet with in the volume as having practised in the year 1428, ventured to reside outside the Judengasse, and believed that she could claim exemption from the payment of taxes on account of her talent, and the general esteem in which she was held. The municipal council rejected her application, and, in 1489, they ordered that Jewish lady doctors should either quit the city or pay taxes like other Jews. A Jewish doctoress was, however, more fortunate in the year 1494; she was relieved from the payment of "sleeping money," a tax imposed on foreign Jews for every day that they stayed in Frankfort. With this exemption was coupled an official recognition of her profession, which was of the utmost advantage to the lady.

MEDICAL MALPRACTICE IN CHINA.—The Chinese penal code does not favor medical malpractice, as the following quotation will show. "Whenever an unskilful physician, in administering medicines or using the acupuncture needle, proceeds contrary to the established forms, and thereby causes the death of the patient, the magistrate shall call in other physicians to examine the medicines or the wound. If it appear that the injury done was unintentional, the practitioner shall then be treated according to the statute for accidental homicides, and shall not be allowed any longer to practise medicine. But if he have designedly departed from the established forms and have practised deceit in his attempts to cure the malady, in order to gain property, then, according to its amount, he shall be treated as a thief; and if death shall ensue from his malpractice, then for having used medicine with intent to kill he shall be beheaded."

DR. THOMAS R. FRENCH, of Brooklyn, has been appointed to the Chair of Laryngology in the Long Island College Hospital.

DR. CUTTER'S DICTIONARY.—A German-Japanese medical dictionary has just been published in Tokio. It was compiled by Dr. Shigu, a government examiner in medicine, and Messrs. Take and Shibatta, officers of the Sanitary Bureau. The work contains 1400 German terms, with definitions in Japanese, and it is stated in the preface that it is based upon the "Dictionary of German Terms used in Medicine" compiled by Dr. George R. Cutter, of New York.

DR. JOHN C. DALTON received the degree of LL.D. from Princeton College at its last commencement.

A POST-GRADUATE SCHOOL is to be organized in Edinburgh, and another, possibly, in Glasgow.

OBITUARY RECORD.—CHARLES W. FABYAN, M.D., died July 23d, at Providence, R. I., where he had practised medicine since 1840. Dr. Fabyan was in his seventy-fourth year. He was born at Scarborough, Me., and graduated from the Bowdoin Medical School in 1837. He was a Fellow of the Rhode Island Medical Society, and was highly esteemed as a citizen and a physician.

NOTES AND QUERIES.

LIME-WATER AS A DETERGENT.

To the Editor of THE MEDICAL NEWS,

SIR: In my practice I am obliged to make frequent utero-vaginal examinations and applications, and in cleaning the parts of catarrhal or leucorrhœal discharges, especially those of a more tenacious character from the cervix uteri, I have found the operation greatly facilitated by the application of lime-water, either by syringe or on cotton. Respectfully yours,

M. G. LEWIS, M.D.

HAYWARD, WIS., June 30, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JULY 24, 1886.

CARMICHAEL, D. A., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, July 24, 1886.

MAGRUDER, G. M., *Assistant Surgeon.*—To proceed to Cairo, Ill., for temporary duty, July 22, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JULY 20 TO JULY 26, 1886.

PERIN, GLOVER, *Colonel and Assistant Surgeon-General.*—Leave of absence extended one month.—*S. O. 165. A. G. O.*, July 19, 1886.

GIBSON, J. R., *Major and Surgeon.*—Ordered from Department of the East to Department of Missouri, on expiration of leave of absence granted in S. O. 158 c. s., A. G. O.—*S. O. 168, A. G. O.*, July 22, 1886.

GARDNER, WM. H., *Major and Surgeon.*—Granted four months' leave, to take effect August 10, or as soon thereafter as his services can be spared.—*S. O. 165, A. G. O.*, July 19, 1886.

MIDDLETON, PASSMORE, *Major and Surgeon.*—Ordered to Department of the East from Department of Missouri.—*S. O. 168, A. G. O.*, July 22, 1886.

DE WITT, CALVIN, *Major and Surgeon.*—Assigned to duty at Fort Sully, Dakota.—*S. O. 66, Department of Dakota*, July 14, 1886.

DICKSON, JOHN M., *Captain and Assistant Surgeon.*—Ordered from Alcatraz Island, Cal., to Fort Mason, Cal.—*S. O. 56, Department of California*, July 8, 1886.

COCHRAN, JOHN J., *Captain and Assistant Surgeon.*—Ordered from Fort Mason, Cal., to Presidio of San Francisco.—*S. O. 56, Department of California*, July 8, 1886.

GIBSON, A. J., *Captain and Assistant Surgeon.*—Ordered from Fort Winfield Scott, Cal., to Alcatraz Island, Cal., on return from leave of absence.—*S. O. 56, Department of California*, July 8, 1886.

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ORIGINAL ARTICLES.

INTESTINAL CASTS: WITH THE REPORT OF A CASE.

BY WILLIAM A. EDWARDS, M.D.,

INSTRUCTOR IN CLINICAL MEDICINE AND PHYSICIAN TO THE MEDICAL DISPENSARY IN THE UNIVERSITY OF PENNSYLVANIA, PHYSICIAN TO ST. JOSEPH'S HOSPITAL, ETC.

A DISEASE upon which a century of American medicine has brought forward but a dozen writers, is of sufficient rarity and interest to claim our careful study and investigation. Until Da Costa published his article on membranous enteritis in the *American Journal of the Medical Sciences*, in 1871, American physicians, with but one or two exceptions, did not seem to have recognized the disease as a separate and distinct ailment.

The earlier cases occurred in England and on the Continent, but in the last decade the cases seem to be about evenly distributed between England and America; about this time a disease similar to the one under consideration was described in the lower animals by Th. Clemens and Engesser, who relate cases occurring in cattle, the membranes in one of the cases[1] measuring fifteen feet in length.

An unfortunate chaos in the nomenclature undoubtedly has done much to retard the study, classification, and correct interpretation of this somewhat rare disease. Almost every writer on the subject has advanced a name different from any title given to the before recorded cases, for example: Tubular looseness or diarrhœa tubularis;[2] chronic pseudo-membranous gastro-enteritis;[3] follicular, duodenal, and clonic dyspepsia;[4] fibrinous diarrhœa;[5] chronic pellicular inflammation of the intestinal mucous membrane;[6] chronic croup of the intestines;[7] mucous disease of the colon;[8] chronic muco-colitis;[9] mucous disease[10] and membranous enteritis;[11] painful affection of the intestinal canal;[12] pseudo-membranous enteritis;[1] intestinal desquamative catarrh;[2] a membrane-like affection of the bowels;[3] intestinal cast.[4]

I feel that Good, in styling the disease tubular diarrhœa, is more nearly correct, as by so doing he advances no theory which would endeavor to explain the condition. By using the title which heads this article we simply express the condition as we find it—*i. e.*, an intestinal cast—not endeavoring by our nomenclature to cover the pathogeny and etiology of the affection as so many writers have unsuccessfully attempted. Perhaps in no way can a better understanding be had of the disease than by recording our case.

Susan H., aged thirty, light mulatto woman of good physique, weight one hundred and fifty pounds, married nine years ago, had one child, born last May (1884), made a good recovery. No miscarriages or history of uterine complaint. Has always enjoyed good health, is neither nervous nor hysterical, and gives no history of a hereditary taint of any kind. November, 1884, she suffered from a severe attack of dyspepsia, after which first passed an intestinal cast which was quite *fourteen* inches in length, and dark in color,[5] it was thought to be a worm, and patient was treated accordingly; since November has frequently passed casts, suffers no pain during or preceding passage, says that in last six months has passed a "bucketful" of them. No colic, tumefaction, or diarrhœa—in fact, bowels must be kept regular by the use of medicines. Blood never occurs in the discharges. Feels a sensation of "something moving" before cast is expelled; the passage of the casts has been almost constant for the last six months, not occurring in paroxysms. Patient says that she feels well, and were it not for the anxiety that her condition causes her, would consider herself in perfect health.

The disease is generally seen in hysterical women, or hypochondriacal men who have suffered from dyspepsia and its concomitants. A few cases have been reported as occurring among children.[6]

Most reporters say that the disease is characterized by attacks of abdominal pain, followed by discharges of the casts; our case suffered neither before nor after the discharge, although, as above stated, some of the casts were fourteen inches in length. Regarding the frequency of the discharges, there may be but a

[1] Med. and Surg. Hist. War of Rebellion.
[2] J. Mason Good. The Study of Med., cl. 2, ord. 2, species 7. Phila., 1825, vol. i. p. 162.
[3] Roche, Sanson et Lenoir. Nouv. Elements de Path., Paris, 1844, t. i. p. 512.
[4] T. J. Todd. Cyl. Pract. Med., Am. Rept., Phila., 1845, vol. i. pp. 653 and 663.
[5] John Grantham. Facts and Obs. in Med. and Surg., Lond., 1849, p 203.
[6] J. Y. Simpson. Obstet. Mem. and Cont., Am. Rept., Phila., 1855, vol. i. p. 279.
[7] John Williams. Dublin Quart. Journ. Med. Sci., 1864, vol. xxxviii p. 459.
[8] Andrew Clark. Lancet, Dec. 17, 1859, p. 614.
[9] S. O Habershon. Ibid., Jan. 4, 1868, p. 7.
[10] Walter Whitehead. Brit. Med. Journal, 1871, p. 143.
[11] Amer. Journ. Med. Sci., Oct. 1871, p. 321.
[12] Powell, Trans. Col. Phys., London, vol. iv.

[1] Cruveilhier, Anat. Path. Gén., t. ii. Laboulbene, Récherches sur les affec. pseudo-membraneuses, 1861.
[2] Com. on Morbid Growths, Phil. Path. Soc. Trans, 1876–77, vol. viii. p. 37.
[3] F. W. Goss. Boston Med. and Surg. Journal, 1881, p. 27.
[4] James F. Goodhart. Trans. Path. Soc., London, 1872, xxiii. p. 98.
[5] Specimens were sent for microscopic examination by Dr. Walter F. Atlee, through whose kindness I was enabled to see the patient several times.
[6] H. D. Chapin. Arch. Pediat., 1884, i. 447–49.

single discharge or they may be almost continuous, as the case we are considering well illustrates. A fact worth noting is the almost entire lack of emaciation notwithstanding the quantity of matter passed. During the intervals of the attack, diarrhœa may be present or the bowels may be constipated; tenesmus is frequently a symptom complained of bitterly by the patient.

Subjects of this disease, while not emaciated, will generally present evidences of malnutrition, as shown by furuncles, carbuncles, sore mouth, and irritable nervous system. The bladder may or may not present symptoms; it generally does, however, in females.

Da Costa (*loc. cit.*) records a case in which the patient could predict an attack with certainty; the premonitory symptoms were blueness of nails, tingling or pain at tips of fingers, and a sense of chilliness.

Hess[1] had under his care a married woman aged thirty-two, who had had two miscarriages and one child at full term; dyspepsia and constipation, alternating with diarrhœa, had existed several years before the patient came under observation. She passed pieces a foot long; every passage for five or six weeks contained these casts. She never passed any blood. Appeared to know when the pieces became loose, as she could feel them moving their entire course through the intestinal canal.

Fish[2] noted the case of a woman aged forty, in whom constipation and uterine disorder preceded the expulsion of the membranes. No blood was noted at any time; patient passed membranes about twice a week

In the cases recorded by F. W. Goss,[3] habitual constipation was a marked symptom; one patient had exacerbations of the disease lasting one, two, and three months, passed a substance that looked like a tangle of "white wet string." In another case a similar discharge from the vagina accompanied that from the bowels. The membranes have been noted a quarter of a yard in length. In his third case some of the membranes had a dark colored central fibre running through them, that was as difficult to sever as a wire. All the cases were females, and about or above middle age.

Whitehead[4] remarks that, out of one hundred cases, *only four* occurred in males; on the whole, females seems to offer a predisposing diathesis; at all events, cases are more frequent among women.

In the *New York Medical Record* (1882, ii. 33–36), we find the case of Mrs. N. recorded, which presents a point of some interest in the fact that she suffered great pain during the attack; the seat of the greatest pain was a spot a little above the umbilicus; the discharges in this case were very offensive.

That physicians and patients may occasionally be mistaken in this disease, witness the following cases. Quekett (Rich. Quain, Ibid.) describes the case of a woman who at intervals of a fortnight or three weeks, had paroxysms of abdominal pain, which were relieved on passing a quantity of membranous matter and tubes, the mass of which sometimes exceeded an orange in size. This mass represented the undigested portion of mutton chops, which had constituted the meat diet of the patient. He states that he has observed *nine* cases of this character.

Corrigan[1] found the substance passed to consist of yellow elastic tissue, resembling the ligamentum nuchæ of sheep. Cases are sometimes met in which hemorrhage becomes a prominent or alarming symptom.

Van Valzah[2] noted a case in which the matter passed was not unlike "boiled macaroni." "There is a long history of nervous disorder, a peculiar skin disease, derangement of the sense of sight, irregular uterine function, dyspepsia, high-colored urine, intestinal disorder terminating in distinct attacks of pain accompanied by characteristic discharges from the bowels;" the pain now comes on at regular intervals, relieved with the appearance of the discharge. There was also increased mental activity, and a severe hemorrhage (melæna), the amount of matter discharged was marked and persistent.

I cannot better describe the macroscopic and microscopic appearance of these casts than by quoting from the admirable article of Goodhart.[3]

> Material consists of: 1st, an elongated network of roundish cords; 2d, white, opaque, solid masses of some inches in length, with small secondary folds on their surfaces, all of which are arranged parallel to the long axis of the mass; 3d, small flocculent pieces of semi-translucent membrane, which, even by naked eye, may be seen to have a corrugated or reticulated arrangement.
>
> The more solid fibres, at their free ends, and on the unattached edges of the secondary folds, oftentimes merge gradually into a perfectly clear and colorless jelly which is hardly visible when placed in water. The cone-like networks have the most consistence, but all three varieties are so delicate as to allow of but very little manipulation out of water.
>
> Microscope: Under two-inch objective, surface is seen to be composed of opaque and translucent parts, the former apparently as round ridges, marking off the latter into regularly arranged hexagonal or polygonal crypts. Under a higher power these crypts are still visible, though much less well defined. These appearances are best seen in the small flakes of membrane, less distinctly in the larger masses, but not in the networks. They appear to be due to the formation of mucus and epithelial matter, either upon the surface of or in contact with some follicular mucous membrane.
>
> The mouths of the follicles on the surface of the cast, when compared with the mucous membrane from a healthy piece of large intestine, present the following differences. They are much larger in the proportion of two or three to one, while the intervening tissue forming their wall is much less. There is also much less structural arrangement in the cells forming the walls in the membrane passed, and while in the healthy gut distinct basement membrane exists, no such membrane can be seen in the casts.
>
> Under the least pressure all the specimens break up immediately into isolated collections of cells, these being of various shapes and sizes; but the greater number

[1] Med. and Surg. Reporter, 1880, 42.
[2] Ibid., 1880, p. 417.
[3] Boston Med. and Surg. Journal, 1881, pp. 27, 505.
[4] Med. and Surg. Reports, Manchester Hospital, 1870.

[1] Dub. Hosp. Gaz., 1854–55, vol. i. p. 38.
[2] Amer. Journ. Med. Sci., July, 1873, p. 106.
[3] Casts from the Intestines. By James F. Goodhart. Trans. Path. Soc. London, 1872, xxiii. p. 98, with 3 illustrations.

are elongated and blunt at one end, having the appearance of disintegrating columnar epithelium. On making a section vertical to the surface, and being careful to make no pressure with the cover-glass upon the specimen, indistinct pieces of tubes or their moulds may here and there be seen, but only once or twice were these very distinct. All stain deeply with carmine, in inverse proportion to their opacity, gelatinous parts staining most deeply. Chemically, all are dissolved by alkaline solutions, by strong hydrochloric acid and heat.

It becomes interesting to inquire into the pathology of the affection, but at the outset we are met by an extremely meagre literature, but few post-mortems of the disease having been recorded. Simpson mentions a case, seen by Abercrombie, in which the mucous membrane of the colon was covered by an immense number of small spots of a clear white color, which were vesicles that, when punctured, discharged a small quantity of clear fluid. This patient had suffered from phthisis, and had passed a large quantity of "membranous casts or tubes."

Da Costa is of the opinion that the affection is not originally an inflammation, but considers the inflammatory element as the result rather than as the cause, and would attribute the true etiology to the nerves presiding over nutrition. In Wright's case the mucous membrane of the colon and lower portion of the small intestine was studded with a thickly set papular eruption.

The colon seems to be the seat which the disease elects; this, however, is not the invariable rule. The middle period of life also seems to be the age at which the passage of intestinal casts most frequently occurs. Again, however, this is not without exceptions; as has been stated, a few cases have been met with in children.

The existence of diarrhœa tubularis may always be determined if ordinary care is taken; it may be mistaken for dysentery and fatty discharges; again, it has been mistaken for worms. In diphtheria the intestines may be attacked by diphtheritic membrane, and the casts passed per rectum. An extremely interesting case showing how diphtheria may present casts of a portion of the alimentary tract, is recorded in a late number of the *Amer. Journ. of Med. Sciences*.

In pyæmia, scarlet fever, puerperal fever, and tubercular disease, a membrane is sometimes deposited and cast off. These are cases of "secondary croup of the intestinal membrane."[1] The prognosis is not good; many cases, however, run a prolonged course, as in the patient of Broca,[2] whose disease lasted fifteen years. Very acute cases occasionally make a complete recovery; this unfortunately is a rare exception instead of the invariable rule. The treatment, as one would suppose, is extremely unsatisfactory. It is well, however, to endeavor to ward off attacks, to prevent the reformation of membrane, and to treat symptomatically during the persistence of an attack. During the acuteness of a paroxysm, opium is perhaps the drug that will best meet the indications. Belladonna, Dover's powder, bismuth, and counter-irritation all have their advocates.

During the remissions a suitable diet is the most important part of the treatment. The patient must take plenty of outdoor exercise, and the skin is to be kept active by baths and massage. Abdominal counter-irritation is to be persisted in for a long time over the course of the colon, as in many cases we find tenderness in this region.

Fowler's solution is, in some cases, a very happy remedy. Strychnia may also be exhibited. Habershon recommends nitro-muriatic acid, henbane, and vegetable infusions; Clark,[1] nux vomica and copaiba; and Whitehead, the bromide of potassium; Cumming[2] advises the use of the battery in quarter-hour daily *séances*.

The following drugs have also been used with more or less transient success: Turpentine, iron, cod-liver oil, oxide and nitrate of silver, muriate of ammonia, sulphate of zinc, tar water, chlorate of potash, corrosive chloride of mercury, blue pill.

Purgatives are distinctly contraindicated; when the bowels become sluggish and constipated, as they are apt to do, only mild laxatives should be administered.

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ACUTE OPTIC NEURITIS OF RHEUMATIC ORIGIN.

TWO CASES—ONE MONOCULAR.

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Acute and chronic inflammation of the optic nerve is one of the most frequent intraocular affections met with in ophthalmic practice. It is, however, by no means confined to the practice of the ophthalmic surgeon, as an enumeration of its causes, and the diseases of which it is a complication or a symptom will indicate. West (*Trans. Ophth. Soc. of Great Britain*, 1882–83) reports twenty-two cases due to injuries of the head and intracranial diseases; Burnett and Oliver (*Amer. Journ. Med. Sci.*, 1884), a case of monocular optic neuritis in which, while the neuritis was subsiding into atrophy, general ataxic symptoms were manifest; Sharkey (*Oph. Soc. Great Britain*, 1884), a case of acute optic neuritis with absolute blindness in four days followed in six weeks by paraplegia with anæsthesia, incontinence of urine and feces, cystitis, peritonitis, and death; Eulenberg (*Neurol. Centralb.*, No. 15, 1884), a similar speedily fatal case. Gower (*Med. Ophthal.*, 2d ed.) describes optic neuritis as occurring in chronic cerebritis, cerebral hemorrhages, softening, abscess, tumors, inflammations and tumors of meninges, rarely in cerebro-spinal meningitis, diseases of the cranial bones and orbit, injuries to the head, myelitis, renal inflammation, leucocythemia, acute and chronic menstrual irregularities, "common in syphilis as a secondary disease, but is very rare as a primary syphilitic affection, if it ever occurs." In speaking of rheumatic influences he says, "Neuroretinitis has been loosely ascribed to rheumatism, but only on the ground that it has sometimes appeared to be due to cold. It must be remembered that the optic nerve, like the other orbital nerves, may be damaged by rheumatic inflammation at the back of the orbit." As other causes he cites lead and other intoxicants, typhus, typhoid, scarlet fever, measles, variola, erysipelas, and diphtheria.

In an inaugural dissertation (Berlin, 1885) Max Haadel reports nine cases of acute optic neuritis, some monocular, occurring under such circumstances that exposure to a draught of air was the most frequent cause. Absence of albuminuria, diabetes, syphilis, lead, and other forms of intoxication, was shown in every case. Leber (Gräfe and Saemisch, *Handbuch*, S. 814) relates the case of a gunner who, in three days after prolonged exposure from standing in deep cold water, was entirely blind from optic neuritis; also of a country postman, exposed by the nature of his calling to all weathers, who suffered from rheumatic monocular optic neuritis. Arlt (*Augenkrankheiten*, Bd. iii. S. 159) speaks of a man who, after hard dancing, exposed his perspiring body to a draught, suffered gradual loss of vision, followed in four years by central symptoms; he quotes Holscher, who records the case of a healthy woman, twenty-two years old, who took a severe cold, rapidly became blind, and died in seven days; Makenzie, the case of a young woman who, while perspiring freely, thrust her hands into cold water—she had a chill, skin became dry in a moment, and in fifteen minutes she was blind; and another of blindness supervening in twelve hours after exposure.

Two cases are reported by Beer (*Lehre der Augenkrankheiten*, Wien, 1792, B. ii. S. 51), and quoted by others, in which the exposure was the indirect and suppression of menses the direct cause of the neuritis: a girl, eighteen years old, one morning in winter, during her sickness, walked with bare feet on the marble floor of the kitchen. In ten minutes she could not discern the brightest light. After the menses were restored, the vision was entirely recovered. In the other case vision was lost during six months from the same cause, and returned after the menses were reëstablished.

Some allowance must be made for the cases which were reported prior to the days of the ophthalmoscope. The above, however, are all plainly instances of amaurosis from acute inflammation of the optic nerve.

Case I. *Monocular.*—Mrs. A., a strong, healthy-looking woman, consulted me on June 8, 1885, on account of defective vision and pain. She had worn R. and L. —4 for eight years, for distance only, with moderate comfort. Three weeks ago she began to complain of a constant, deep-seated pain in the eyeballs, and of occipital headache. Ophthalmoscope showed myopia —3, and vertically oblong disks. *Fundus healthy.* R. V. $\frac{10}{cc}$; L. V. $\frac{15}{cc}$.

Thinking her pain and headache caused by wearing an improper corrective, I ordered a laxative pill, and dubois. sulph., gr. j–℈j, to be instilled into the eyes to paralyze the accommodation. The patient was to return next day for measurement of refraction. The following week she was kept at home by a very sore foot—a corn which had become inflamed, resulting in an abscess. On June 18th she complained that two days before the sight of the right eye had become very dim. I found vision reduced to counting fingers at three feet; pupil dilated and immovable (duboisia?); media clear, optic nerve moderately swollen, outlines of disk lost, arteries normal, veins tortuous, no hemorrhages. Field not limited. Left eye normal and remained unaltered. She was ordered to bed in dark room; copious local bloodletting. Hydrarg. chlor. mit., gr. $\frac{1}{12}$, until salivation. The vision sank until all light perception vanished, and remained so for forty-eight hours, then commenced to return, and in seven days was entirely restored.

R.—2.50 = $\frac{20}{XX}$. L.—2.75 = $\frac{20}{XX}$.

On closely questioning the patient, and being able to exclude all known diseases and poisons, only two possible causes could be discovered. On a very hot night, between her first and second visits, she had lain, thinly clad, on the floor of her bed-chamber;

and upon rising felt that she had taken cold. The other and less likely cause may be found in the suppurating corn. Just what connection exists between the corn and the optic nerve of the other side is hard to define, yet the relation of cause and effect is not impossible. Arlt (*op. cit.*) assigns the application of leaves of rumex to the feet to stop sweating in an old man as the cause of his neuritis; and Beer relates a case of absolute blindness caused by suppression of a purulent discharge from ulcers on the feet, cured by reëstablishing discharge by means of mustard plasters.

Case II. *Double.*—A healthy man, aged thirty-one, occupation switchman on a railroad, consulted me December 2, 1885. For past ten days had severe frontal headache, followed, during last three days by rapid loss of vision; otherwise perfectly well, and no history of syphilis. R. V. counting fingers at one foot; L. counting fingers at two feet. R. field limited on nasal side; L. not limited. Both disks swollen. R. = 3 D.; L. somewhat less; no hemorrhages; pupils dilated but responsive. Ordered home to bed; blisters on each temple; hydrarg. chlor. mit., gr. $\frac{1}{12}$ every hour. In two days all light perception was lost, except at extreme temporal side of R. field; pupils widely dilated and immovable. L. nerve swollen equal to right. For four days this condition remained unchanged. The patient was now completely under the influence of mercury without the slightest improvement. He was next bled freely from the arm, and *while the blood was flowing from the vein the perception of light and large objects returned.* Profuse sweating, by infusion of jaborandi, further improved the vision. The next two weeks he took potas. iod., gr. xv, hydrarg. chlor. corros., gr. $\frac{1}{18}$, four times daily.

Jan. 6.—V. = $\frac{20}{L}$. Patient then disappeared, but it may be presumed vision became fully restored.[1] On the day of last examination both backgrounds were normal. The swelling had subsided, exudation absorbed, and disks regained their healthy color. On the first examination the vision was so bad that nothing decided could be learned of the color perception or condition of accommodation. No albumen and no sugar in urine. The cause in this case was probably exposure.

The pathology is decidedly obscure. Arlt, in the autopsy of a case which died of paralysis four years after the optic neuritis, found the envelopes of the brain greatly congested and tense, and, when opened, "emptied eleven and one-half cupfuls of brownish-red dirty water from the side ventricles." In another, in which there were no other than ocular symptoms and death on seventh day, twelve to fourteen ounces of clear serum distended the ventricles. In Edwards and Lawford's twenty-two cases of neuritis complicated with injury and diseases of the brain in which the optic nerves were examined, the conclusion was reached that the inflammation of the meninges had extended to the sheaths of the optic nerves and thence into the nervous tissue through the fibrous network. The pathology most commonly accepted is a dropsy of the nerve sheaths. If Arlt had included the optic nerve in his examination, he would most probably have found the outer covering (dura mater) of the nerve widely distended with serum and the pia mater (neurilemma) and optic nerve compressed. Leber says, "The association of a high grade of this change (hydrops) with the above described brain affection (hydrocephalus internus) is an established fact. In all cases the hydrops was double-sided, but not equally developed on each side." This condition may suffice to explain double neuritis but hardly can be considered satisfactory in monocular cases. Here we can more readily believe that a true rheumatic inflammation of the fibrous coat of the nerve between the optic foramen and the sclerotic opening, exists, caused by exposure, and that the inflammation is attended with a free exudation of serum and perhaps fibrin producing sufficient pressure to induce papillitis. Such cases are seldom fatal, and our pathology is at best speculative.

The purely rheumatic cases—*i. e.*, those due to exposure to draught or otherwise subjecting an overheated body to a sudden lowering of the temperature are generally monocular (Leber). Hence the exciting cause is probably an acute inflammation in the course of the nerve anterior to the chiasm; other causes—suppression of menses, of a purulent discharge, of perspiration of feet, absorption of poison, etc.—develop double neuritis. The hydrops is double and due to an abnormal collection of serum within the brain membranes.

Limitation of the field and peculiarities of loss of color perception are of little diagnostic or prognostic worth. The blindness comes on so suddenly and advances with such rapid strides that V. is lost before the patient is seen, or is so bad that the boundaries of the field are extremely uncertain. The diagnosis is at once decided by the ophthalmoscope. It shows through the clear media the engorged disk, its site marked only by exit and entrance of bloodvessels, its outline lost. A few small hemorrhages may be found, but they are rare, and no white patches of degenerative or choroidal atrophy are found. The pupils are dilated moderately or widely, and either not at all or only slightly responsive to light. The accommodation is presumably abolished. The sixth nerve may be involved in the paralysis.

The termination in the two new cases was recovery. It is not, however, always so favorable. In general the prognosis depends upon the site of the lesion and not on the degree of the amaurosis. When the hydrops is limited to the infraorbital part of the nerve the prognosis is favorable. When it is secondary to hydrocephalus, the patient either dies or recovers with partial or complete amaurosis.

In the treatment unanimity of opinion prevails—it consists in vigorous antiphlogistics; local and general bloodletting; the preparations or the alkaloid of jaborandi; mercury carried to salivation,

[1] Patient reappeared April 12th, on which day I made the following note in my case book: V = $\frac{20}{XXX}$ pty. Both nerves whitish, and small vessels absent; edges of disks moderately well defined. No patches in choroid or retina. Field and color perception normal.

and potassium iodide. I would especially call attention to the improvement of vision in my second case during the venesection.

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A RARE FORM OF MULTIPLE SARCOMA.

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John P. T., white, a native of the United States, married, a cabinet-maker, aged fifty-two years, admitted to Presbyterian Hospital July 4, 1884, had always been well until six years ago, when he first noticed a tumor, painless, and about the size of a marble, on the posterior and right side of the neck; this gradually grew, and when it was as large as a hen's egg, nineteen months ago, he was admitted to the Jefferson College Hospital, and it was removed by Dr. Allis; unfortunately no record of its microscopic character was preserved. The operation wound soon healed, and he remained well until four or five months ago, when he discovered a small tumor on the left side of the neck in the submaxillary region, and soon after another over the right pectoral muscle. On admission both tumors were found to be movable and not deeply seated. Their removal was advised, to which patient consented, but as he did not seem to be in very good condition, he was first given tonics, stimulants, and nourishing food.

He improved rapidly, and on the 23d of July the tumors were again carefully examined, when it was found that seven other tumors had developed. They varied in size from a filbert to a goose egg, were painless, superficially situated, and freely movable. The smaller growths were covered by normal skin, which was freely movable over them; as they increased in size they became adherent to the skin, and as they grew larger the cutaneous capillaries over them enlarged, and as they still further enlarged the skin over them gradually thinned and ulcerated.

The tumors were situated as follows: One in left submaxillary region, one over right chest anteriorly, one in right groin, one over body of each scapula, one over right buttock, two over left buttock, and one about the middle of the back. The one in the left submaxillary region had broken down, and bled easily on the removal of the dressings, as had also the one on the right buttock.

On the 24th of July, the submaxillary tumor, the tumor over the right buttock, and the one in the middle of the back, were removed; they were all superficially situated and encapsulated, and there was no hemorrhage of any consequence. The wounds were irrigated with a bichloride of mercury solution—1 to 1000, and dressed with lint soaked in a solution of the same strength. The tumors were all removed by circular incisions. The wound in the neck gaped widely, and was allowed to heal by granulation; the edges of the others were approximated by sutures, and they healed almost by the first intention.

On the 10th of August, seventeen days after my first operation, another tumor was found to be developing in the right temporal region. It was painless, and the patient did not know of its existence until his attention was directed to it. On the 13th of August, the tumor over the right pectoral region, which had now attained the size of an orange, was removed; it presented the same characteristics as the previous ones, and at the same time a smaller tumor the size of a hickory-nut which was situated about two inches below the outer extremity of the right clavicle was removed. Also one the size of a large orange from over the right scapula. The wounds were united by silk sutures, and treated as before, with equally good results. On the 28th of August, a new tumor was discovered near the lower and posterior border of the right axilla.

On the 30th of September, I again removed three more tumors with an enlarged inguinal gland. One tumor was in the right inguinal region, was the size of a large apple, and after its removal through a longitudinal incision, there was removed from beneath it, and through the same incision, an enlarged lymphatic gland about the size of a walnut. The second tumor was the one in the right temporal region before alluded to; it had increased considerably in size, was more deeply situated, and was immovable. Some difficulty was experienced in removing it, as its capsule was thin, adherent to the bone, and ruptured while being enucleated. It had to be extracted piecemeal; its contents were soft, of brain-like consistence. The third tumor was over the left buttock, and about the size of a fifty cent piece. After this operation the patient had some slight constitutional reaction, and the right eyelids and side of the face were considerably swollen for several days, but the maximum temperature reached was 100°, and he rapidly convalesced.

On the 17th of October, the patient developed malarial symptoms, and his general health began to decline. The tumors continued to increase in size, new ones were constantly developed, and at the time of his death, on February 20th, there were seventy-nine tumors scattered over the surface of his body.

Post-mortem examination seventeen hours after death, by Dr. H. F. Formad. Body greatly emaciated, skin very anæmic, and subcutaneous adipose tissue nearly all atrophied. The subcutaneous tumors have increased in size and number, and protrude as variously sized tubers upon the surface of the body. They are all covered by unimpaired skin. In size they vary from that of a pea to that of a large fist, the smaller ones predominating. Total number of neoplasms counted, seventy-nine. All the tumors appear as distinctly encapsulated nodes moderately firm in consistence; on section, white in color and yielding a clear blood-tinged juice upon being scraped with a knife. The tumors that had been formerly removed and had recurred were larger than the rest, and showed adhesions to the skin and surrounding structures and peripheral infiltration. The most conspicuous neoplasm was on the right temporal region and side of face, extending inward to the angle of the submaxillary bone. On dissecting it out, the base was found closely adher-

ent to the periosteum, the bone being eroded in some places. The upper edge of the zygomatic process was absorbed. All the tissues in the region between the bone and the skin were involved or absorbed by the new growth, which presented, when extirpated, an irregular shaped mass weighing thirteen ounces. The next largest tumor was extirpated from the left axillary space; it appeared to have developed from the fascia, and did not implicate the axillary lymph glands.

Thorax.—The pleural cavities contained, each, about three ounces of straw-colored liquid. A few old adhesions were noted at right apex. A small node of the new growth, about the size of a marble, was found in the parietal serous lining of the thorax in the third intercostal space on the left side near the spine. The bronchial and mediastinal lymph glands were enlarged, but did not appear to be infiltrated by the new growth. No tumor deposits could be discovered in the lungs; the latter were highly congested and œdematous, and somewhat hepatized in the lower lobes on both sides. The heart and pericardium were also free from tumor deposits.

Abdomen.—The liver is somewhat enlarged; weight, four pounds and five ounces. The left lobe of the organ was almost entirely replaced by a mass the size of a large fist, circumscribed, nodulated, and in other characters identical with the subcutaneous tumors. The right lobe of the liver was of normal appearance, but showed a few small nodes at the periphery, and on section exhibited a deposit of the size of a hen's egg in the interior. In the mucous membrane of the gall-bladder a flat deposit of the size of a marble was also found. About twenty pediculated masses of the new formation, varying in size, were found throughout and springing from the serous lining of the peritoneal cavity. The largest, in size corresponding to a hen's egg, was one hanging from the under surface of the diaphragm and wedged in between the latter and the liver. A number of these polyp-shaped deposits were attached to the omentum, the abdominal walls, the mesentery, and mesocolon, but it was not apparent that they involved the lymph glands. Some of the latter were merely hypertrophied to a moderate degree.

The kidneys were of normal size and appearance, but were the seat of numerous deposits of the new growth. Some of the nodes were located in the capsules of the kidneys, most of them, however, in the interior of the organs. A few hemorrhagic infarcts were noted in the cortex of the left kidney. Finally, some tumor deposits were found in the jejunum about its middle, springing from below the mucous membrane and protruding like mushrooms into the lumen of the gut. They were four in number, of the size of hickory-nuts, flat, and resting upon broad pedicles. Between two of the tumors the intestines showed a very perfect intussusception, which, from appearances, must have been of post-mortem origin. All the rest of the abdominal organs were normal.

The Brain.—No trace of tumor deposits, and no hemorrhage was observed. On examination of the base of the skull, it was found that the tumor described as involving the right side of the head penetrated through the right wing of the sphenoid bone, and a mass as large as a walnut was found inside of the dura mater, having forced its way from without into the cranial cavity.

Microscopical Examination.—A number of the tumors, and from all the various locations of the body were examined microscopically, and showed invariably the structure of spindle-celled sarcoma, large-celled variety. Their origin everywhere in the body was exclusively the connective tissue substances. The superficial neoplasms had taken their departure from the subcutaneous tissues and the fasciæ, those of the intestines from the submucous tissue, those of the abdominal cavity from the peritoneum, and those of the other parenchymatous organs from the interstitial connective tissue. The epithelial elements nowhere participated actively in the new formations. The mode of development and growth of the neoplasm has everywhere been originally a central one—*i. e.*, in the form of encapsulated nodes, though some of the tumors which had attained large size showed a peripheral growth by means of infiltrating the surrounding structures.

Remarks.—A close study of this case reveals some interesting and rather unusual features. The microscopical examination proved that every tumor in the body showed the structure of a pure spindle-celled sarcoma of the large-celled variety. It is, however, well known that the spindle-celled variety of sarcoma, although malignant so far as recurrence *in loco* after extirpation is concerned, does not give metastases to internal organs. Further, it is also known that tumor metastasis does not affect the skin, nor are malignant tumors known to travel from one part of the skin to another (unless by direct continuity and uninterruptedly). All the tumors in the internal organs in this case, as well as every one of the many isolated tumors in the subcutaneous tissue, must consequently have been of independent origin, and must have each started from independent foci of their own. Moreover, the tumors could not be traced to have spread either by continuity of structures or by the blood or lymph channels. It appears to be evident that we deal here with a tumor dyscrasia, viz., a case of true multiple tumor disease unusual especially for the spindle-celled variety of sarcoma, and not with the metastatic form of sarcoma.

SARCOMA OF THE ORBIT:

REPEATED REMOVALS; NON-RECURRENCE FOR EIGHT MONTHS.

By D. C. COCKS, M.D.,
CONSULTING OPHTHALMIC SURGEON TO THE RANDALLS' ISLAND HOSPITALS, AND ASSISTANT SURGEON TO THE NEW YORK EYE AND EAR INFIRMARY.

I was invited by Dr. J. H. Fenner, on the 5th of April, 1885, to see a daughter of Mr. C., of Harlem, in consultation. The patient was about four years old; the family history revealed the fact that her grandfather had had a "sore" (epithelial?) at the inner canthus. Six weeks before (Feb. 1885), the family first noticed a swelling of the upper eyelid of

the right eye in the granddaughter, and it had gradually increased and now demanded attention.

Present condition: She is apparently in perfect health, and is well developed for her years. The left eye is normal in all respects. The right eye presents the appearance of ptosis, but the drooping of the eyelid is found to be due to a swelling under the upper eyelid. The eye is also forced downward and outward by the same agency. The movements of the globe are not limited by the size of the growth. Sight is normal. On palpation the growth is found to be a hard, bilobular tumor, movable in the orbit, unattached to the skin, and having slight if any adhesions to the orbital walls. It is the size of and has the "feel" of two small hazelnuts in juxtaposition. The density and rapidity of the growth gave indications of malignancy, and its immediate removal was advised.

The following day, chloroform having been administered, I made a horizontal incision one inch in length through the upper lid, about three or four lines above the upper border of the cartilage, down to the growth. As it had made a capsule for itself of the connective tissue of the orbit, I easily separated it from its connections in front with the handle of my scalpel and blunt hooks. A strong silk ligature was then passed through the tumor by which it was drawn forward, and the enucleation proceeded with. I succeeded in loosening the whole growth in this manner except at its upper border, where a fibrous attachment to the periosteum required the use of scissors.

The operation was done with antiseptic precautions, and the wound healed by first intention except at the inner angle, which required a few days for cicatrization to be complete. The tumor when removed was about the size of a horse chestnut, and was of the consistency of a fibroid on section. Microscopically it was pronounced by Dr. J. L. Minor (now of Memphis), and Dr. J. B. Campbell, of New York, to be a small round-celled sarcoma.

April 27. Patient can open the eyelid fully, but it is retracted at the inner angle.

May 5. Yesterday I noticed a hard and tender lump at the inner angle of the orbit. The lid is again slightly swollen.

6th. The new growth has the same feeling as the primary tumor. It is situated a little nearer the inner angle. A consultation being held, it was determined (taking into consideration the microscopical appearance of the primary growth and the rapidity of its redevelopment) that the new growth should at once be removed together with its periosteal attachments, and as much of the surrounding bone as was safe to take away.

Accordingly, on May 8th, assisted by Drs. Fenner, McLean, Peirce, G. H. Cocks, and by G. Marshall, D.D.S., I made an incision two inches long parallel to and just above the eyebrow, also one at right angle to this from the bridge of the nose up to the forehead for about one inch. These flaps were then dissected up and reflected respectively upward and downward, freely exposing the growth and its attachments. With the aid of a dental engine, a dental burr was used to cut through the periosteum and to make a groove two lines in depth around the growth (which was attached to the bone). I then moved the burr gradually from the periphery of the circle thus made toward its centre; as the burr advanced, it removed everything in its path for at least one-eighth of an inch below the periosteum. The growth and its base having thus been gotten rid of, I proceeded to remove all of the suspicious tissue in the vicinity and in doing so removed at least a square inch of periosteum from the roof of the orbit, the eye being depressed to allow the burr to enter the orbit freely.

All this having been done antiseptically, the edges of the wound were coaptated, and a pressure bandage applied, which was allowed to remain for one week. No reaction followed, and when the bandage was removed the wound was found to have healed throughout by first intention. A slight serous discharge, however, showed itself from the inner angle of the wound three days later, but lasted only about two days.

I felt at this time that I had thoroughly eradicated the diseased tissue, but in three weeks time the growth reappeared, and the following week was seen to project into the superior cul-de-sac of the conjunctiva. Then in view of its evident malignancy, and although the globe was not involved, I advised evisceration of the orbit, which was done in June. From this last operation the child made a good recovery, and remained free from any local recurrence until her death, which occurred in February, 1886, from pneumonia following measles one year after the growth was first noticed, and eight months after the evisceration of the orbit.

The points of interest in the case are:

1. The repeated recurrence of this orbital growth after apparently thorough removal of all diseased tissue.

2. Its non-reappearance after the removal of *all* the tissue that could possibly contain any disease germs.

3. Many will question the propriety of the removal of an eye when not involved in the disease, but I was and am convinced that in no other way could immunity be obtained *in this case*, as the second operation was as thorough and extensive as *I* could make without sacrificing the globe, and *it failed.*

4. Although the growth *might* have recurred had the child lived, it certainly was saved much suffering by its removal.

5. This case emphasizes the fact that recurrent growths in this region can only be successfully dealt with by the use of most energetic measures.

HOSPITAL NOTES.

ST. MARY'S HOSPITAL, QUINCY, ILL.

Service of Dr. William A. Byrd.

(Reported by Alexander F. Lee, M.D.)

INGUINAL COLOTOMY.

John W., colored, æt. forty years, was admitted to hospital December 12, 1885, suffering from some obscure hip trouble. For several months prior to his admission he had suffered from pain, gradually increasing in severity, in and about the left hip-joint. This he attrib-

uted to rheumatism, and he had been treated for that disease, but with no amelioration of the distressing symptoms. Had been having fever, varying in intensity, with occasional night sweats. There was also a history of rectal trouble. Tongue was considerably coated. Breath offensive. Appetite poor. Constipation alternating with diarrhœa, with some pain during defecation. On examination the left hip was observed to be considerably enlarged, emphysematous, and painful on pressure, with slight flexion and adduction of the thigh.

Perforation of the rectum was diagnosticated, the pus passing out of the pelvic cavity through the great sciatic foramen and burrowing into the hip. This caused irritation of the nerves and muscles of the hip, and accounted for the hip symptoms.

The patient was placed upon tonic treatment, and the following week several long and deep incisions were made into the hip, evacuating a large quantity of pus having a fecal odor. Considerable extremely offensive gas escaped at the same time with a hissing sound. For several weeks after this the patient improved steadily. The abscesses were washed out daily, and the tonic treatment was continued.

The improvement, however, was only temporary. The fever and night sweats recurring, the pulse being rapid and weak, the patient growing thinner and weaker, and the discharge from the abscesses becoming *feculent*, showing conclusively a communication with the bowel, it was determined, as a *dernier ressort*, to give the bowel rest, and permit the healing of the abscesses by performing colotomy.

January 30th, the patient was anæsthetized with a mixture composed of one part by measure of bromide of ethyl, three of chloroform, and four of alcohol. Believing inguinal colotomy preferable to lumbo-colotomy because the discharge coming out in front would be under better control of the patient and attendants, and would not be as irritating as at the back, an incision to the extent of about three inches was made one inch above and parallel to Poupart's ligament. Entering the abdominal cavity the sigmoid flexure was sought for, brought external to the opening, ligated, and divided below the ligature. The opening in the lower portion of the bowel was closed by sutures, and united to the inferior angle of the incision for future use. The circumference of the upper portion was now united by sutures to the edges of the incision, being careful to enclose the parietal layer of the peritoneum, thereby uniting peritoneum to peritoneum, and establishing an artificial anus.

The ligature was now removed, and the patient sent to his ward. Opiates were administered to prevent and control peritonitis. Since the operation there has been some peritonitis with the accompanying symptoms, hiccough, etc. The feces pass through the artificial anus and cause very little trouble or inconvenience to the patient. By means of a syringe passed into the rectum, not only is the rectum washed out but also the sinuses in the hip, showing an undeniable communication. The patient exhibits marked improvement and the abscesses are daily becoming smaller, with the probability of their soon closing.

Remarks.—As will be seen from the history of this case, there was considerable difficulty in making a diagnosis, and arriving at the true cause of the hip trouble. The patient had been treated for rheumatism; the same symptoms might have arisen from hip-joint disease or resulted from psoas abscess.

Knowing that there was a communication with the rectum, and that so long as the feces were permitted to pass through the bowel and out into the sinus, just so long would the bowel refuse to heal, and as a natural consequence the sinuses and abscesses in the hip also; knowing this, one principal object in the treatment must be attained, rest for the bowel. Rest was the *sine qua non*, and there was but one means of obtaining it for the requisite time—performing colotomy and compelling the feces to make an abnormal exit until the bowel could heal.

It is not the intention to leave the artificial anus permanently open. As soon as the abscesses and sinuses in the hip shall have healed, the opening into the bowel closed, and bowel attained healthy condition, then, and not till then will the artificial anus be closed, and the divided gut reunited. Of course, this necessitates a second operation, with the danger of peritonitis, etc., but the great benefit to be derived from closing the artificial anus and permitting the feces again to seek their natural channel, is sufficient argument in its favor.

MEDICAL PROGRESS.

Spartein.—MM. Laborde and Legris, in an article entitled "La Méthode Expérimentale appliquée à l'Étude des Substances Médicamenteuses," published in the May number of the *Archives de Physiologie Normale et Pathologique*, come to the following conclusions concerning spartein. Spartein renders the heart-beats stronger and more protracted; its action on this organ is essentially dynamogenic and central in origin. Absence of alteration in pressure and of peripheral or vasomotor effects constitutes one of the important proofs, and is corroborated by other phenomena; among them those belonging to convulsions and asphyxiation, which indicate a predominant influence of the medulla oblongata and spinal cord. It must always be remembered that in frogs, a long time after actual death, even when the animal begins to dry, the heart beats rhythmically, as though spartein gave an impetus to the strength and length of the beats. MM. Laborde and Legris observed similar phenomena in newborn puppies. No other influence proceeding from the nervous system can be supposed to act in this case than that of intracardiac ganglia. The myographic researches made by these investigators have not at present furnished results that warrant decided conclusions.

The therapeutic properties of spartein were formulated by M. Sée, in his paper to the *Académie des Sciences*, as follows: It revives the heart-beats and the pulse; in this respect it equals in action digitalis and convallamarine, the alkaloid of lilies of the valley. As a tonic it is more active, more prompt, and more lasting It immediately regulates the rhythm in cardiac disturbance; in this effect it is superior to any other medical substance. In serious atonic conditions the heart-beats are quickened, and in this respect spartein resembles belladonna. The favorable modifications resulting from the action of spartein occur in one hour, or in some cases a few hours after its administration, and continue two or three days,

when its use is discontinued. During this time the general strength is increased, and respiration is rendered easier, but not so effectually as by potassium iodide. The urinary function is not influenced by such small doses as those hitherto used. The more recent researches made by MM. Laborde and Legris lead them to endorse M. Sée's statements, and they further state that the action of spartein is quicker and more rapid than M. Sée observed it to be. A daily dose of sulphate of spartein varies from five to twenty-five centigrammes.

The prompt action of spartein renders it invaluable in heart-disturbance requiring immediate treatment; in instances of asystolia its use is preferable to that of any other drug. In all cases of weak heart with asthenia, sulphate of spartein should be used, whether there be lesion or not. MM. Laborde and Legris declare that they do not know any conditions that should be regarded as indications against the use of spartein; it is not an accumulative substance in small doses, it does not exercise a deleterious effect either on the digestive organs or on the cerebrospinal system. It can be used for some time without an interruption being necessary. When digitalis is used, in the necessary intervals of administering it spartein sulphate may be given with advantage. In cardiac affections accompanied with dropsy, an infusion of broom-flowers added to spartein sulphate has a beneficial effect, acting as a diuretic. In cardiac dyspnœa, iodide of potassium may be used as well as spartein sulphate, and pyridin inhalations should also be administered.—*London Med. Record*, July 15, 1886.

Atropine Poisoning.—Kratter, in the *Vierteljahrsschrift für Gerichtliche Medicin*, XLIV., S. 52, contributes a long paper on poisoning by atropine, based on a study of eight cases in his own experience. The following are his conclusions:

1. The detection of atropine in the body is certain, provided proper methods of analysis are employed.

2. The urine is especially valuable for this purpose, since atropine is quickly absorbed and entirely excreted through the kidneys, apparently without undergoing change. It can be detected in the urine in cases which have not terminated fatally.

3. The examination of the pure crystalline residue in polarized light, though not conclusive, is to be recommended, since the crystals of the sulphate are sufficiently characteristic to render the detection of atropine in this way tolerably sure.

4. Positive proof of the presence of atropine is only to be found in its physiological action. The human eye is best of all for this purpose, since it is the most sensitive. The eye of the cat is also very sensitive.

5. Atropine shows great resistance to putrefactive processes, and can be detected in bodies which have been buried for some months.

6. Owing to the rapid elimination of atropine through the kidneys, the results of the chemical analysis are liable to be negative if the patient survive for some days.

Flückiger, in the *American Journal of Pharmacy* for April, 1886, p. 198, confirms the observation made by Mr. A. W. Gerrard in 1884, that the mydriatic alkaloids are possessed of quite exceptional alkaline power toward mercuric chloride, from the aqueous solution of which they precipitate mercuric oxide, the other natural alkaloids giving no precipitate at all with mercuric chloride, or, at least, in no case separating mercuric oxide.

Flückiger now makes the further observation that atropine, quite exceptionally, is able to impart a red coloration to phenolphtaleïn paper, thus contradicting the assertion made by him in 1884, that alkaloids generally were deprived of such an action. He has demonstrated that atropine is the only alkaloid (speaking, however, of the more generally used alkaloids) which displays the same action as the inorganic alkalies. This is a remarkable coincidence, and goes far to favor the suggestion that atropine must be peculiarly constituted, differing from other solid alkaloids, none of which, so far as we actually know, show the same behavior toward mercuric chloride and phenolphtaleïn. The author has also tried other coloring matters, and found them to be acted upon by atropine in the same way as by potash and soda. Atropine, therefore, has an alkaline power like the hydrates of sodium and potassium, differing in this respect from (probably all) other alkaloids. The author states, however, that mercurous chloride is not blackened by atropine as it is by the alkaline hydrates. Mr. Gerrard, *Ib.*, on the other hand, asserts that this statement is contrary to fact, and he has placed on record the experiments on which his assertion is based.

Flückiger describes modifications of the other tests for atropine. The original paper is referred to for details. It is to be borne in mind that phenolphtaleïn can be used in the identification of atropine only in the absence of the inorganic alkalies.—*Boston Med. and Surg. Journal*, July 29, 1886.

Alcohol in Hospitals.—Dr. Drysdale, leading physician of the Metropolitan Free Hospital of London, England, lately read a paper before the British Medical Temperance Association on the above topic, in which the following conclusions were prominent:

1. Alcohol is not a real food, but must be classed among the anæsthetics, in company with ether and chloroform; hence it ought not to be used as an article of ordinary diet.

2. The treatment of fevers by alcohol in large quantities is inferior to the treatment by cold and ordinary diet.

3. There is no clear proof that alcohol is changed into carbonic acid and water in the system; and, at any rate, part of it remains unchanged for as much as twelve hours in the system, irritating the internal organs.

4. Moderate amounts of alcohol neither raise nor lower the temperature, but excite the heart's action, and in some cases, in small doses, less than one ounce gives appetite.

5. In large and stupefying doses, alcohol lowers the temperature.

6. The amount of alcohol administered in various hospitals is so wanting in uniformity as to show that there is no settled opinion in the profession at present as to its value.

7. It would be well, when alcohol is prescribed in clinical hospitals, that some exact amount of it should be prescribed, and not a varying amount of an alcoholic fluid not analyzed.

8. The London Temperance Hospital experiment seems to indicate that many diseases do well without the use of any alcohol, which previously were thought to require it.

9. Hence, whilst the modesty of science forbids us to say that alcohol will prove useless in any given disease, it seems advisable for patients in hospitals to have that drug administered to them with far greater caution than has hitherto been the case. And it would seem also to follow that all mere dietaries should be free from the routine use of alcohol, which should in all cases in hospitals be distinctly ordered to the patient by his medical adviser.—*Quarterly Journal of Inebriety*, July, 1886.

A Contribution to the Comparative Study of Convulsions.—An elaborate article by Hughlings-Jackson, which appeared in *Brain*, for April, 1886, is analyzed as follows in *The Manchester Medical Chronicle* for June, 1886.

On a review of the manifold phenomena included in the familiar terms "fits" and "convulsions," the author comes to the conclusion that they may be divided into three great classes, according to the regions of the central nervous system from which they take origin. These regions he regards as forming three groups of centres classified, in order of evolution, as lowest, middle, and highest sensori-motor centres. The lowest centres are those lying in the spinal cord, medulla, and pons, with some others, reaching as high as the centre for ocular movements; the middle "level of evolution" includes Hitzig and Ferrier's motor centres, Schäfer and Horsley's trunk centres, and Ferrier's sensory region; while the highest level consists of parts of the brain in front of the middle motor centres, with the highest motor centres, and the highest sensory centres lying in the occipital lobes. All parts of the body are represented by each order of centres, in simplest, more complex, and most complex combinations respectively. To the highest level of all are referred epileptic convulsions (true epilepsy), to the middle level epileptiform seizures, and to the parts lying at the lowest level "inward fits" or respiratory convulsions.

After laying down these general principles, the author concentrates his attention, throughout the rest of the paper, on the convulsions (respiratory convulsions) of very young children. These fits occur, as he points out, almost exclusively within the first year of life, a highly momentous period of the brain's existence. The two higher levels are as yet unevolved, while the centres of the lowest level are rapidly developing, those for the organic functions naturally taking precedence of the others in point of time. Thus, at one epoch of life, the respiratory centre, for example, will be "at once undeveloped and actively developing," and, therefore, highly excitable and unstable. At the same time, the higher regulative mechanisms, which will afterward repress exuberant discharge, are still practically non-existent.

Here, then, we have a condition favorable to the easy provocation of excessive respiratory efforts.

Again, as the author shows, a motor centre suddenly goaded into excessive and rapid discharge will tend to sum up the several movements under its sway, to produce them no longer in their natural alternation but coëtaneously; so that opposing groups of muscles will finally pass from harmonious working into violent contention—into that condition, namely, which we recognize as a convulsion. Moreover, the convulsions, at first confined to the muscles employed in normal respiration, will gradually spread to the auxiliary muscles, and thence, by secondary excitation of neighboring motor centres, to most of the muscles of the body.

The fact that rickety infants are above all liable to these fits appears to Dr. Hughlings-Jackson to point to their true pathology. The softness of the ribs in rickets deprives the diaphragm of its normal support, and seriously embarrasses respiration. The respiratory centre is thus perpetually bathed in blood so highly venous that it requires only a slight additional stimulus to throw it into furious action. A coughing fit, for example, will, by checking the already imperfect respiration, decide the onset of a convulsion.

This theory is supported, in his opinion, by the fact that similar convulsions occur in rapidly asphyxiated animals, and in children the subjects of laryngitis, or cyanosed from congenital heart disease. Further countenance is given to it by the success of the treatment usually adopted for cases of laryngismus. Cold sponging, removal to a purer or even to a colder air, and such drugs as musk, belladonna, etc., are all stimulants of the respiratory centre, and find their chief value in reducing the persistent venosity of the blood.

The paper concludes with some remarks on "eccentric irritations," which the author believes to be powerless of themselves to start convulsions; they are important only as determining an explosion for which the centre has been prepared by a more potent agency.

The Microbes of Pneumonia.—The subject of acute pneumonia is one of those which of late has excited a considerable amount of attention, and yet, common as the disease is, it is one which is surrounded by many unsolved problems Professor Weichselbaum has recently contributed to the Vienna Medical Society a paper, in which, after stating the prevalent opinions upon the nature of the affection, and dwelling especially upon the different opinions held by Friedländer on the one hand and Fränkel on the other as to the precise characters and properties of the supposed bacterial agent, he relates his own experiences. He points out that clinicians are divided into two camps upon the etiological question, some regarding pneumonia as solely an infective disorder, others considering that the infective forms are different from those caused by exposure to cold. Weichselbaum, distinguishing between primary and secondary forms, divides them into (1) lobar; (2) disseminated; (3) passive pneumonia—hypostatic, etc.; and (4) lobular. He has examined 127 cases and instituted 87 cultivation experiments, the material for the cultures being obtained one or two hours after death, as well as from the living subject, by means of a Pravaz syringe introduced into the lung and pleura. He distinguishes four kinds of microörganisms. The diplococcus pneumoniæ is the most common, consisting of oval, elliptical, and round cocci, which occur in chains as well as in pairs. The chains are composed of from six to eight or as many as twenty to thirty cocci, are straight or slightly curved, and the cocci are developed in a capsule of varying thickness in proportion to their vitality. The second variety resembles the first,

but distinguished by a greater uniformity in spherical shape, and in forming long and sinuous chains. The third is known as the Staphylococcus aureus s. albus. The fourth he terms the bacillus pneumoniæ, consisting of rods of different lengths, the smallest and apparently youngest being oval. They have a capsule, and correspond to Friedländer's pneumococcus. The first variety was found in ninety-one cases, mostly of croupous pneumonia, also in the secondary forms. The second, or streptococcus, was found twenty times—namely, in fifteen cases of primary and five of secondary pneumonia. The staphylococcus occurred in secondary cases only, and mostly where the primary disease was due to this microörganism. The fourth kind was met with nine times, four times unmixed with other forms. All these organisms were most abundant in the earlier stages of the disease, being scanty or absent in gray hepatization, and, if present, staining badly or unencapsuled. At the margins of the pneumonic focus in the œdematous tissue micrococci were numerous, pointing to the œdema being not a passive process but a precursory stage of pneumonic infiltration, and resembling the invasion of cutaneous tissue in erysipelas. Moreover, inflammatory changes accompanied by these microörganisms were found in the respiratory tract above the lungs. Secondary meningitis in pneumonia was shown to be due to the presence of the same microorganisms, which were also found in the serous exudations of pleurisy and pericarditis, which might complicate the lung affection. The bacterial origin of the disease was, therefore, held to be demonstrated.—*Lancet*, June 12, 1886.

POISON BY RAT BITES.—In an article thus entitled, in the *American Practitioner and News* for July 24, 1886, DR. A. J. BANKER records in full five such cases. He says: "I have collected cases to the number of ten; the full notes of some I have not yet been able to obtain. Out of the number, four have died; two with dropsy, one with tetanus, and one with extensive sloughing and so-called pyæmia. The history of the cases is, in the main, the same, the stage of incubation varying but a few days. In most of the cases the wound healed kindly without general disturbance, and the general disturbance which came on subsequently seemed to be in the nerve-centres.

"In each of these cases a particular train of symptoms was developed, bearing a relation in a collection of cases which suggests the idea of a specific poison. The question now arises, Is this form of poison specific in its character, or does it belong to that general class of blood poisoning denominated pyæmia and septicæmia? As to the treatment which seems best adapted to the poison, I have been unable to arrive at any definite course. The only fact which impressed itself forcibly upon my mind was the intolerance of the patient to any medicine containing acid. The muriated tincture of iron acted as an excitant and aggravated the nervous symptoms, besides it had a deleterious effect on the secretions. Alkalies are well borne in the acute stages, and alleviate the sufferings and favor elimination. Salicylate of soda with acetate of potassium, or large doses of bicarbonate of soda, act favorably. A thorough saturation of the blood with alkalies seems to counteract the poison."

DOVER'S POWDER AND ITS MODIFICATIONS.—"If I could envy any one, as a therapeutist, it would be the old physician who originally had the happy thought of blending astringent opium with relaxant ipecacuanha, and both with a diuretic and laxative. I suspect that Dover's name, though so little is known of the man himself, is more frequently quoted than that of any other physician. This by the way; that which I have in my mind is to suggest that it is often very good practice to modify Dover's powder by combining the one grain of opium and the one grain of ipecacuanha with other salines than sulphate of potassa. The true Dover's powder contains nitrate of potassa as well as sulphate, four grains of the nitrate to four of the sulphate, and it often seems to me reasonable to revert to this form, the nitrate of potassa being, in small doses, a good diuretic. I also very often venture to prescribe the powder with other modifications of the saline part, and with advantage. In acute rheumatic fever I usually substitute sodium salicylate for the potash salt; in gout, bicarbonate of soda; in remittent febrile cases, two grains of quinine with five of sodium salicylate; and in tonsillitis and other febrile throat affections, chlorate of potassa. It would surely be worth the time and skill of one of our scientific pharmaceutical brethren to prepare and bring out a series of Dover's powders in these modified forms."—DR. B. W. RICHARDSON, in *The Asclepiad*.

TREATMENT OF HYSTERIA BY COMPRESSION OF NERVES.—DR. RUAULT, in a communication to the Clinical Society of Paris, recommends, for the arrest of an hysterical attack, compression of a superficial nerve trunk, especially at its point of emergence from the deep parts. When firm pressure is made on both supraorbital nerves (the ones most easily got at), kept up for sufficient length of time, and directed to one point of the nerves, the patient's face soon takes on an expression of pain, several short inspirations are taken in rapid succession, followed by a deep expiration, and the fit is over. Dr. Ruault has thus, during the past four years, almost invariably succeeded in cutting short hysterical attacks, including hysterical dyspnœa, hysterical delirium, etc.—*Glasgow Medical Journal*, June, 1886.

EXPERIMENTS IN GASTRIC DIGESTION.—BIKFALVI maintains that in flesh-eating animals the chief function of gastric digestion lies in the dissolution of connective tissue and other collagenetic substances; while the digestion of albuminoids is chiefly effected by the pancreatic juice. He finds by experiments on dogs that in two hours of gastric digestion the following percentages of given substances are digested:

Raw cascin	25 per cent.
Boiled egg albumen	41 "
Raw ligam. nuchæ	49.5 "
Raw liver	52.5 "
Raw kidney	55.33 "
Boiled beef	58 "
Raw unstriped muscle fibre	68.5 "
Raw beef	79.5 "
Raw hyaline cartilage	81 "
Raw fibrin	97.5 "
Raw lungs	99.5 "
Raw tendons	95.5 "

—*Centralbl. f. d. med. Wiss.*, No. 7, 1886.

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SATURDAY, AUGUST 7, 1886.

THE NATURE OF TETANUS.

NEXT to hydrophobia tetanus is, probably, the most obscure subject in the field of surgery. The explanations of its nature which have yet been offered or accepted, have not been entirely satisfactory, nor have they led to any good understanding of the principles of treatment of this fortunately rare disorder. The nervous theory has much in its favor; but it cannot be said to be competent. The zymotic theory is, to some minds, no more so. To those who have witnessed a number of cases of tetanus any explanation of its nature will probably be less satisfactory than it would be to those who have formed their ideas of it from reading. Circumstances peculiar to individual cases often seem inconsistent with any one of the theories thus far offered as to the nature of this disorder. And yet something is being done from time to time to elucidate this obscure subject.

The latest contribution with this object is a communication of ROSENBACH, of Göttingen, to the Fifteenth Congress of German Surgeons, in which the germ theory of tetanus is supported. Many experimental attempts to convey tetanus from man to animals have proved unsuccessful. Carle and Rattone first succeeded in producing tetanus by inoculation of the contents of an acne pustule. The results were positive in eleven out of twelve rabbits. Nicolaier inoculated rabbits with earth, and in a number of cases produced, in addition to malignant œdema, a set of symptoms which resembled those of tetanus. Rosenbach attempted to come much closer to the nature of tetanus by securing inoculation material from a patient suffering with tetanus after having had his feet frozen. This material was taken from the part below the line of demarcation, and was inoculated into two guinea-pigs, which showed symptoms of tetanus the next day, and died in the course of it. Taking new material from the point of inoculation in these animals, Rosenbach succeeded in producing similar symptoms in four guinea-pigs and eleven mice. This tetanus was, apparently, identical with Nicolaier's earth tetanus. The most marked symptom was spasm of the extensors of the tail and of the hind legs.

The location of the first symptom depended upon the seat of the inoculation. If this were made in the loin, the corresponding leg became stiff, the foot spasmodically extended, the tail rigid and inclined toward the inoculated side; and similar symptoms soon followed on the opposite side. After this the muscles of the lower part of the back were affected, and then those of the anterior extremity, and of the jaw. Trismus and opisthotonus followed, and in about twenty-four hours the subjects of experiment died in pronounced muscular tonus. If the inoculation was practised on the anterior extremity the symptoms began in it, with spasmodic extension and pronation; and trismus soon followed. In these cases the body was flexed toward the side on which the inoculation was made, in a state of pleurosthotonus. In all cases there was first a local and then a general state of tonic muscular spasm.

Rosenbach discovered in the inoculation material which he used a delicate bristle-shaped bacillus, similar to that described as the cause of earth tetanus. This he successfully cultivated in coagulated serum, and found the fourth generation as efficient as the first. Under cultivation the bacillus developed a spore at one end, and came to resemble a pin or drum-stick in shape. In endeavoring to isolate this bacillus, Rosenbach got no further than to obtain it in conjunction with the bacterium of putrefaction. But, as the latter alone does not produce tetanus, it seems to him proper to attribute to the former the tetanus which follows the inoculation of both together. He also thinks that this experimental result is important from its correspondence with the fact that tetanus in human beings is apt to follow putrefactive wounds. In regard to the mode of propagation of this bacillus, and of infection of the whole system, Nicolaier has made a number of experiments, and has detected the bacillus once in the sciatic nerve and twice in the spinal cord, and Rosenbach found it in the latter situation twice.

In the discussion upon this communication, KÖNIG confirmed the identity of the experimental tetanus of Rosenbach and of Nicolaier with that of human beings, and that which frequently occurs in horses after castration. In these the spasms often

begin in the muscles of the extremities and back; and so, in human beings, trismus is not always the first evidence of tetanus. SOCIN reported that he had also produced genuine tetanus with inoculations of garden earth. EBERMANN called attention to the possible influence of ptomaïnes in the production of tetanus.

This interesting presentation of the subject of the pathogenesis of tetanus contains some assertions which cannot be admitted without question. In the first place, it is not true that tetanus is more apt to follow wounds in which putrefactive changes occur. On the contrary, the experience of most surgeons is that no sort of wound or injury is specially liable to cause tetanus, and it is a recognized fact that it is as likely to follow the most trifling injury as the most serious. This is as true of injuries of the nerves themselves, as it is of any other part. Again, it is decidedly exceptional to find the first manifestations of tetanus in muscles other than those of the neck or jaw. It is noticeable also, in a paper which maintains the germ theory of this disease, that the investigators who have been most successful in producing it experimentally have found the specific germ in only a small number of the cases, and then in ridiculously small numbers; and there is no mention of its ever having been found in the blood or nervous system of human beings.

It has not escaped the attention of Rosenbach that there seems to be a disparity between any conceivable rate of multiplication of germs within the body and the rapidity of the development of experimental tetanus. For an explanation of this he has to have recourse to the hypothesis of a ferment, such as belongs to the humoral theory of the nature of tetanus. This weak point in the germ theory we believe to be fatal, and we cannot see how it can be lightly passed over, or how Rosenbach can so innocently designate as an "incubation period," one which was no longer than twenty-four hours. The experiments reported are interesting, and deserving of careful study; but they are by no means conclusive. They may show that some lower animals are liable to tetanus after inoculation with irritants containing a certain bacillus; but it is well known that tetanus may occur in human beings in consequence of injuries in which the skin has not been broken. There is a case reported by Nicaise, in which it was produced by dashing a glass of cold water upon an infant. Then there are the cases of idiopathic tetanus, in which the presence of a bacillus can hardly be imagined, and those of trismus nascentium, usually attributed to tying the umbilical cord, a method hardly favorable to the entrance of germs. In fact, the nature of tetanus is almost as obscure to-day as that of hydrophobia, and the nervous theory still seems the most reasonable one in regard to it. In some cases it seems to be a disease caused by imitation. Not long ago there occurred two cases in a hospital in this city, in the second of which the disorder seemed to be of this sort. It is a curious fact that a large number of cases of tetanus have followed injuries received in celebrating the Fourth of July in certain cities in this country, so that there was a kind of epidemic, the number of cases being out of all proportion to the ratio of cases of tetanus in gunshot wounds in general. Such occurrences must be largely due to the prevailing fear of lockjaw at this time, although it might be supposed to be explained by the great heat of this season of the year.

It would be a great gain to science if we could discover the *materies morbi* in tetanus, and a great gain to humanity if we could learn how to forestall its action. But we have not got so far yet; and the germ theorists may or may not be on the right track. Further experiments with inoculation of different materials may clear the subject up, if they are undertaken without bias, and carried out with rigid accuracy.

THE TREATMENT OF ERYSIPELAS.

So much has already been written on the subject of the treatment of erysipelas that it might seem superfluous to add anything to it. But from time to time the journals contain accounts of methods which have been so successful in the hands of those who recommend them that it seems surprising that they do not supersede all which have preceded them. This surprise, however, diminishes when it is borne in mind that a remedy which proves useful in one case of this disease may prove useless in the next, although the cases seem exactly alike. The general principles of the treatment of erysipelas are unfortunately sometimes overlooked in the zeal which champions some special method, and too much is attributed to what may have had but a small share in the cure, or neglect of these general principles leads to failure when a method of undoubted value is tried.

The attempt of Hueter to cure erysipelas by means of hypodermatic injections of solutions of carbolic acid, which has fallen into disuse, illustrates the error of following too blindly a special indication. The belief in the germ theory of this disease, which is quite general in Germany, led Hueter to hope that it could be cured by destroying the germs at the seat of the inflammation. In this, experience has shown that he was mistaken. The books indicate plainly by their contradictory statements that others have committed the same error of generalizing from too scanty premises. Thus, one author recommends the use of venesection, or blisters, or ointments, or washes, or powders, and another says that they do no good. Both statements accord with the experience of those who make them;

but it is evident that both cannot be of universal application.

It is not necessary to illustrate this point further. But, bearing it in mind, it may be possible to estimate properly the claim of special efficacy for any new or revived method. The most recent claim of this sort is made by Kühnast in the *Centralblatt für Chirurgie*, February 27, 1886, for the plan of multiple scarifications, followed by the application of carbolic acid solution. Kühnast's experience has been gathered in the clinic of Prof. Kraske, in Freiburg. Here a few cases of erysipelas have recently been treated very successfully in the way described. Acting upon the theory that erysipelas is a germ disease, and relying upon the investigations of Fehleisen, which seem to show that the coccus of this disease is found in and near the seat of evident inflammation, the practice of Hueter has been modified by making scarifications carried beyond the limit of the redness, squeezing out the accumulated fluids, and then rubbing in a five per cent. solution of carbolic acid, with the idea that the release of the accumulated fluids of the skin and subcutaneous tissue and the relief of tension would favor the access of the germicide to the germs. The development of this theory by Kühnast is interesting; but it is not materially different from the way in which the good effect of punctures or scarification was accounted for as long ago as 1828, when Sir R. Dobson advocated this method. Kühnast appears to attribute too much virtue to the antiseptic. His preference is for carbolic acid, but he has had to abandon it for corrosive sublimate in one case; and he very properly thinks that salicylic acid or boric acid may be more suitable in others.

There can be no question that very satisfactory results have been secured in a few cases by this method, but neither the experience nor the argument of Kühnast warrants the conclusion that it deserves any higher estimate than that it is a sensible plan for the treatment of certain cases. These seem to be cases seen early, before deep inflammation has occurred, in which the general condition of the patient is fairly good. But they are the very cases in which any one of many methods may prove useful, and in which most surgeons would hesitate to take such energetic steps to meet the disease. Still, it may be well to call attention once more to the value of local bloodletting and relief of tension in the bloodvessels and lymphatics to which Kühnast's cases bear witness; and to the value of dressing the little wounds made by the knife with material which shall exclude the possibility of a new infection. We are not disposed to attach much importance to the germicide action of any of the antiseptics recommended for this purpose; but they can do no harm, and they help in securing the purity of the dressings.

CHIARA'S PORRO CASES.

The eighth operation in the general Porro record, and the fourth of Italy, was that of Prof. Chiara, then attached to the Santa Caterina Maternity of Milan; this was in August, 1879. During his service in that hospital he operated five times, saving his last three cases, and all of the five children. After his removal to Florence, having been appointed to a professorship in its University, he became attached to the Maternity in that city, and resumed his obstetrical labors. Here, in July, 1884, he performed his sixth operation, which proved fatal from kidney disease. On January 13, 1885, he operated for the seventh time; on May 18, 1886, for the eighth; and on June 21, 1886, for the ninth time, the three cases being entirely successful. By these nine operations six women and nine children were saved.

In a tenth case Prof. Chiara made trial of the method of Sänger, by which Dr. Leopold, of Dresden, had saved eight of his nine cases, and all of the children; and was successful in saving mother and child. This favorable result will probably lead to the introduction, to some extent, of the Sänger method into Italy.

An additional Porro operation was performed in the Maternity of Florence by Dr. E. Fasola, assistant to Prof. Chiara, on April 19, 1886. Sänger's method was first tried, but was abandoned because of a severe uterine hemorrhage, and the method by amputation of the uterus substituted for it. It is generally believed that convalescence after the Sänger operation is more rapid than after the Porro operation, and this belief is strengthened by the experience of Prof. Chiara's Sänger case, in which the patient sat up for a short time on the tenth day.

SOCIETY PROCEEDINGS.

AMERICAN NEUROLOGICAL ASSOCIATION.

Annual Meeting held at Long Branch, July 21, 22, and 23, 1886.

(Specially reported for The Medical News.)

Wednesday, July 21.—Morning Session.

Dr. Burt G. Wilder, of Ithaca, N. Y., on retiring from the Chair, said that in view of the fact that he had delivered a somewhat extended inaugural address upon a general subject last year, he would confine his remarks to the brief discussion of what he believed to be a new fact, namely

THE ACCURATE COLLOCATION OF A SUTURE AND FISSURE IN THE HUMAN FŒTUS.

In three alcoholic fœtuses in the Cornell University, estimated to be from three to seven months advanced, the lambdoidal suture directly overlies a short but deep fissure, which has seldom been noticed and has been hitherto misinterpreted, and which may be called the

lambdoidal fissure. A photograph and drawing of one case were submitted; the fissure was very distinct and deep, but had no ental correlative in the cases examined. He remarked that Bischoff and Huxley had regarded the fissure itself as temporary in man, though persistent in apes.

Prof. Wilder believed the fissure to persist in man also, but to lose its relation with the suture in the last two months of fœtal life. He mentioned the probability that the coronal suture is similarly related with the precentral fissure, and closed his remarks with an enumeration of several questions that arise in connection with the subject, and with the suggestion as to making use of fœtal brains by careful exposure, preservation, photographing, etc.

PROF. WILDER then introduced to the Association Dr. Charles K. Mills, of Philadelphia, the President-elect.

DR. MILLS, on taking the Chair, made a few introductory remarks on the work of the Society, and on the proposed Congress of American Physicians and Surgeons. He then presented specimens and described the brains of a monomaniac, two murderers, an idiot, a negro, and a Chinaman; drawing attention to the

IMPORTANCE OF THE STUDY OF THE CEREBRAL CONVOLUTIONS

in these cases.

He congratulated the Association upon the large amount of published work which had been done by its members since the last annual meeting; instancing the fifth volume of Pepper's *American System of Practical Medicine*, out of the twenty-four contributors to which, more than one-half were members of the American Neurological Association. He urged the importance of individual effort toward increasing the membership of the Association, so that it would be in fact, as well as in name, the great national representative of those members of the medical profession who are interested in neurology and psychiatry, and the branches of science which are specially correlated to those branches.

He discussed at some length, and with approval, the project for the formation of a Congress of American Physicians and Surgeons; he pointed out that difficulties might arise in connection with the initiation and inauguration of the Congress. He spoke of danger apprehended by some, that the Congress, like another national medical body, might drift insensibly into the arena of medical politics, but believed, if wisdom prevailed during its development, that such might be avoided. He thought it would be better for the meetings of the Congress to be biennial, thus allowing the associations, as special organizations, to have entirely separate and independent meetings on alternate years. He also believed it desirable to have the meetings of the Congress held at a fixed location, and thought Washington the most desirable place, but held that this whole subject of the time and place of meeting was a matter of minor importance, and could be safely left to the judgment of the committee of conference.

He then exhibited the brain of Burk, a delusional monomaniac; that of Taylor, an alleged delusional lunatic, executed in Philadelphia; also that of a feeble-minded youth from the Pennsylvania Training Institute for Feeble-minded Children; as well as the brains of a negro and a Chinaman. The brain of the Chinaman was first exhibited at the Philadelphia Neurological Society, by Dr. A. J. Parker.

Dr. Mills stated that the Chinese brain was the first that had ever been described so far as he knew. In discussing the appearances presented by these specimens he gave what he regarded as the peculiarities of human brains of low type, and also the differences between the simian and human brain. He demonstrated that in the white adult brains presented, and also in others, of which descriptive notes were read, that there were easily recognized differences between these and those of individuals of higher grade. In all, asymmetry was distinctly atypical, both of lobes and gyral and fissural arrangement, he believed to exist in a marked degree between the two hemispheres.

In general terms, the white brains were found to approach more nearly in type the brains of the negro, ape, and fœtus than is ever the case in an ordinary adult white brain, even in individuals of moderate intelligence and intellectual power. He discussed the question, whether these specimens, some of them from men who had committed crimes of violence, who had taken the lives of their fellows, sustained the conclusions of Benedict and others: that the brains of criminals are absolutely distinctive; whether we had a criminal type of brain which could even be separated from the type which is found in forms of insanity. Such a generalization he regarded as too narrow.

In the brains presented, there were certain points of affinity and points of difference noted, from known conditions of higher human types; these were so great as to allow him to put them into a class together as representatives of brains of low type. He regarded the attempt, however, to construct a theory as to the anatomical basis of crime, in some respects unphilosophical; criminals and transgressors of the law being of the most diverse character. Dr. Mills criticised some of Benedict's conclusions, although he paid a tribute to his observations and regarded them as stimulating research to a wonderful degree. He thought it strange that so little research had been made in the morphology of the brain. Although we had a large negro population, but little had been done toward the mapping out of the negro brain. He remarked that no Indian brain had ever been described in detail, and thought some of our army surgeons on frontier posts, who had great facilities for such investigations, should undertake this interesting work. Dr. Mills also stated that he had looked in vain for a description of the conditions presented by the cerebral surface of an intellectual woman.

In conclusion, he remarked that although much study had been given to fœtal brains, no detailed investigations of the brains of infants, children, youths, and adults, arranged in series and accompanied by histories, etc., had ever been made; which he considered a highly important and valuable method of study.

DR. WILDER remarked that the subject was worthy the importance which the President had assigned to it, and he was afraid there were a large number of physicians and surgeons who were not as familiar with the

brain as they ought to be, and he considered it the highest compliment the President could pay to the Association in speaking in the straightforward manner he had assumed in his paper in relation to the anatomy of the brain.

He would have liked to examine the brain of the Chinaman more thoroughly in order to confirm some of Dr. Mills's statements. In the negro brain he had called attention to the exposure of the insula; he had one specimen where it was still more exposed and in the specimen he spoke of the brain was hardened in the skull so that there was no chance of undue pressure. He noticed that the Chinaman's insula was abnormally covered, but he thought it would not do to credit the Chinaman with it, as he noticed the brain had been flattened upon one side and the first temporal convolution had been pushed over the insula. He also agreed with the President in his remarks upon Benedict's generalization. He thought, however, they merited careful scrutiny.

With regard to the confluence of the Rolandic fissure and the Sylvian, he remarked that he should hesitate to say anything, but in some twenty or thirty brains that he had examined he had never seen the confluence of central and Sylvian.

He thought that it would be a difficult matter for him to find an average brain, and he suspected it was the same with a large number of others; he thought the brains that were studied were more or less peculiar, giving as an instance, that some years ago he secured six human brains for his students to dissect, but upon examination each of them had some peculiarities, and he concluded they were too valuable for ordinary dissecting.

He then asked the President, supposing he had not known this to be a Chinese brain before him, whether he would have felt disposed to note its peculiarities, and further if there was anything that would lead him to think it belonged to a different race from our own.

Dr. L. C. Gray, of Brooklyn, did not think there was any disagreement among neurologists as to the one-sided manner in which Benedict's researches were conducted. He thought it was unfair in Dr. Wilder to criticise any one point in a paper which contained so many individual peculiarities, until after a careful examination of the specimen. He thought that until some one has determined the limitation of the various convolutions in the human brain it would be difficult to set the line.

There were two points, he said, which had attracted his special attention, for in two negro brains which he had carefully studied, there was some uncovering of the fissure of Sylvius; but he had never seen the fusion of the fissure of Rolondo with the fissure of Sylvius.

Dr. Dercum, of Philadelphia, remarked that some months ago he had exhibited a brain from an epileptic female; the island of Riel was covered on both sides, but on one side the fissure of Rolando was confluent with the fissure of Sylvius.

He also remarked that Dr. Parker had described several fissures which had occurred in a negro brain on the mesial surface which were afterward ascribed to mechanical causes.

Mr. Joseph Jastrow, of Johns Hopkins University, by invitation of the President, stated that he had had twelve or fifteen brains before him for class demonstration, and after taking plaster impressions had taken composite photographs of them, hoping to establish, thereby, a standard brain.

Dr. Birdsall, of New York, thought that Benedict's theories were rather strained but may have stimulated further research. He also opposed the view that one peculiar type of brain must form that of a criminal. He thought the study of the cranium in different races would be of advantage, but that the study was still in its infancy as to relations between these peculiarities and their functions.

Dr. Sachs, of New York, remarked that he was naturally interested in the general anatomical bearings of the fissures. He thought we ought to distinguish between the primary and secondary development of the fissures. He remarked that it would have been important to know the conformation of the skull from which the brain of the Chinaman was removed, this he thought might prove an important factor.

Dr. Wilder remarked that he thought the discussion had been made in regard to the fissures which are considered as primary; he did not think much would be gained by speaking of the secondary fissures.

The President agreed with Dr. Wilder that it would be better to harden the brain in the skull. But in reference to the specimens he had shown, some of them were obtained under great difficulties, and he was glad enough to get the brains as they were. The fissure of Rolando, in one of the cases, was crossed by a convolution instead of being confluent. It is true, as Dr. Wilder has said, that many brains are peculiar, but perhaps it might be due to the reason that most brains secured are from those of low organization.

In regard to the Chinaman's brain, he would not have known that it belonged to *a different race;* there was a peculiarity of appearance, but he could not understand what it was. Dr. Parker noticed an unusual obliquity and shortness of the orbital surface. In regard to Benedict, he did not think we should be too severe in our criticisms, but he (Benedict) had a bad manner of generalizing.

In regard to Mr. Jastrow's remarks, he thought such experiments might be very interesting in studying the higher and lower types, but was not so certain of thus attaining a standard of the normal brain. He considered that Dr. Wilder had answered Dr. Sachs's remarks, and that he himself based his remarks upon the primary fissures principally.

An Executive Session was then held, and the following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Landon Carter Gray, M.D., of Brooklyn, N. Y.

Vice-President.—John Van Bibber, M.D., of Baltimore, Md.

Secretary and Treasurer.—G. M. Hammond, M.D., of New York.

Councillors.—Dr. B. Sachs, of New York; and Dr. Wharton Sinkler, of Philadelphia.

Dr. L. C. Gray, of Brooklyn, then read a paper on

LESION OF BOTH TEMPORAL LOBES, CAUSING ALMOST ABSOLUTE LOSS OF MEMORY OF EVENTS, WITHOUT WORD-DEAFNESS OR DEAFNESS.

Male, aged forty-three years, unmarried, with a probable history of specific disease. Patient was admitted to the Hospital for Nervous and Mental Disease in the early part of June, remaining there until the latter part of the month, when he was removed to the Morris Plains Asylum, where he died in October. During the whole of this time careful observation failed to detect any other symptom than that of absolute loss of memory of events, without word-deafness or deafness.

At the post-mortem there was found a lepto-meningitis of both the right and left temporal convolutions, which meningitis also extended around the fissure of Sylvius, involving the gyrus marginalis and the bases of the two ascending convolutions.

A number of letters of the patient were read, which showed this peculiar loss of memory and the preservation of his intellectual faculties in other respects.

Afternoon Session.

The President announced that the discussion upon Dr. Gray's paper was in order.

Dr. Wilder said that he had not quite understood the lesion Dr. Gray referred to in his paper.

Dr. Gray replied that meningitis was the only lesion in the case.

Dr. Zenner, of Cincinnati, asked to what extent the cortex was affected.

Dr. Gray replied that both temporal lobes were softened, and the layer of gray matter was much less than any other portion of the brain. No microscopical examination was made.

Dr. Zenner asked whether there was any confusion of speech.

Dr. Gray answered that he was told there was none at all, and he knew there was no evidence of it in the patient's letters.

Dr. Zenner remarked that he would not like to accept a case as refuting the ideas which have been generally accepted, that the temporal convolutions are the receptacles of speech, so to speak; in a case like this, where the softening was not marked as a meningitis, it does not necessarily rob the parts underneath of their function.

Dr. Gray stated that both temporal lobes were softened.

Dr. Zenner thought that could have occurred in the last few days of life. As regards the temporal convolutions being the seat of hearing, he thought that had been less definitely established; that it was only one of the organs in physiology, and that there was nothing which he knew of in pathology which would establish the temporal convolutions as the seat of hearing; but lesion of the temporal had been established to result in word-deafness.

Dr. V. P. Gibney, of New York, then read a paper on

PSEUDO-HYPERTROPHIC PARALYSIS.

He remarked that his motive for reading the paper was to record a case in order to supplement some microscopical specimens; the latter having been carefully prepared by Dr. Amidon. For many years he had been able to distinguish quite readily between a progressive muscular atrophy and a pseudo-hypertrophic paralysis; but what now surprised him was that the spinal cord had not been found to be diseased.

The case he reported came under his care in April, 1878; was under daily observation for one year, reporting from time to time afterward, and died December 30, 1885. Patient was a male, eight years of age, the loss of power dating from the second year of his life; but the mother felt no anxiety about the child's inability to walk, and did not seek medical aid until he was six years of age. The family are all decidedly neurotic, father, mother, and children, four or five in number, having all some peculiarity of speech. Three children have died of tubercular meningitis, so reported. One brother, two years younger than the subject of this history, is afflicted in the same manner, and his case is progressing the same way.

Dr. Amidon then presented for examination under the microscope some sections of the normal cord, and some specimens of the cord from the child whose history had just been given by Dr. Gibney; the only difference discernible being the change in the cells of the anterior horns, the contour of the cord being apparently intact.

Dr. Gibney asked whether there was any cord lesion in pseudo-hypertrophic muscular paralysis? whether the latter stages of this disease are distinct or whether they run one into the other?

Dr. G. W. Jacoby, of New York, remarked that the last time he had the pleasure of demonstrating a case, and in seventeen recorded cases, there was no change in the anterior cord; but, on the other hand, there was in the muscular tissue a shortening of the fibres, an increase of connective tissue, and an increase of fat. In some cases there was no reference made to the motor nerves in the muscles themselves. In others, where pieces of the muscular tissue had been removed and examined microscopically, atrophy of the terminal filaments of the motor nerves was found with other changes. He asked Dr. Amidon whether he paid any attention to that.

Dr. Amidon replied that Dr. Gibney had sent him a portion of the dorsal muscle for that purpose, but he had not yet examined it.

Dr. Sachs remarked that the subject of the paper was of practical interest at this time in neurology, as we had had an era in which diseases of the brain were discussed mostly; then there was an era of interest in the peripheral nerves. He thought that, in direct contradistinction to Charcot's school, we must take into consideration what Erb had done. He supposed that all knew that this condition is common in the young, but there is another form which is not, and which is called juvenile muscular atrophy; juvenile atrophy should probably be classed as a motor and spinal cord affection.

He thought there was one clinical point which would enable us to establish a differential diagnosis, and that would be by the electrical reaction. If the affection is peripheral only, the electrical reaction may slightly diminish or increase; but if central, it is not altered.

Dr. Zenner remarked that we know that a change in the muscular tissues produced by disease will pro-

duce a change in the ganglionic cells. He thought that where the disease had commenced in the muscles and nerves, there would be but slight change in the cord, perhaps only in the size, and no change otherwise in the intercellular tissue. It seemed as though the change there usually might be secondary, and that the extensive disease in the periphery is primary. He thought, however, that where there is extensive disease in the anterior portion of the cord the disease would be primary.

DR. GRAY remarked that it is true that peripheral lesions might cause central troubles probably travelling in along the nerve filaments, but there was no decided proof to that effect. In some cases secondary central disease occurred in animals where there was a neuritis produced by caustic, as also in human beings where caustic had been used upon the scrotum or testicles. One of these cases of peripheral disease of which he has known has been of a decided nature.

DR. MASSEY, of Philadelphia, thought that if there was no life in the muscles the cells would be affected.

DR. ZENNER explained that he had in view at the time he spoke the idea of serious injuries, as, for instance, the loss of an arm, after which atrophy had been found in the brain or cord.

DR. MILLS asked an opinion as to the difference between pseudo-hypertrophic paralysis and muscular atrophy; stating that one of the brains he exhibited in the morning was from a youth who presented congenitally these two diseases together. He was one of three brothers in all of whom these diseases were conjoined; some portions of the muscles were removed, and a report appeared some years ago of them by Dr. Curtin. His own convictions were that these two diseases were practically the same thing.

DR. LLOYD, of Philadelphia, stated that he had reported the case of a female in whom pseudo-hypertrophic paralysis and atrophy of the muscular tissues were combined; there was wasting of the calf muscles and also of those of the forearms, but there remained some faradic contractility, there was great muscular loss of power, she could hardly raise her head from the pillow. There were also marked changes in her joints, hardly any of the olecranon process was left, and the patellæ were only one-third of their normal size.

DR. GRAY remarked that he had a case in his wards who had been some six or seven years in dying. He has grown enormously fat for the reason that he had been kept quiet; he is helpless in his lower extremities and almost so in his upper ones but he takes an enormous amount of food. To look at him, one would suppose it to be a case of pseudo-hypertrophic muscular paralysis.

DR. G. M. HAMMOND, of New York, remarked that the destruction which occurred in the cells should not necessarily produce destruction of the spinal cord or atrophy, but if the disease extended from the muscles up the nerves it might do so.

DR. AMIDON said that he thought that in progressive muscular atrophy there would not be any caving in, so to speak, of the spinal cord.

DR. G. M. HAMMOND replied that a disease which commences in the spinal cord, might be extensive enough to produce caving in of the anterior horns, whereas in the specimens shown, the horns seemed to be in very good shape although the disease involved the cells.

DR. DERCUM, of Philadelphia, thought that point was well taken, for in some of his specimens there was absolutely no change in the contour of the horns; he considered that in this disease there was an atrophic condition of the cells more purely; there is not an active inflammation, but simply a shrinkage and gradual disappearance of the cells.

DR. GIBNEY in closing the discussion, thought the absence of the cells and slight loss of contour sufficient to account for the great muscular changes. But upon this point he was not satisfied, whether the loss of function and tone would not of itself account for the disappearance of the cells and their shrinkage.

DR. SARAH J. MCNUTT, of New York, then reported

A CASE OF AN INFANT WITH MULTIPLE TUMORS OF THE CEREBRUM, PROBABLY OF SPECIFIC ORIGIN.

The history of the child was given in detail. Both father and mother were intemperate, but no specific history could be obtained. The cause of its last sickness was owing to exposure, the child having suffered from gastro-intestinal trouble for some time. The temperature rose to 104°, the patient dying from paralysis of the heart.

The autopsy revealed in the lower lobe of the left lung a caseous mass the size of two peas, bronchial glands enlarged and cheesy, the liver was filled with small yellowish-gray masses, the spleen also being affected in the same manner. In various portions of the brain lymph and pus were found. The arteries appeared thickened, and in the left ascending frontal convolution just beneath the surface were two caseous nodules the size of small marbles, which could be shelled out as though encapsuled. Similar nodules were found in the parietal and occipital lobes.

Dr. McNutt then described very clearly the lesions which we are apt to find at the post-mortems upon children dying from transmitted syphilitic affections, concluding that in the treatment of these cases we must rely upon mercury promptly exhibited; inunctions she considered had given the best results, as the gummata in children apparently belonged to the secondary instead of the tertiary stage.

DR. WILDER asked what was the composition of the nodules.

DR. MCNUTT replied they were vascular and filled with large round cells.

DR. G. BETTON MASSEY then read a paper on *The Cause of Electrotonus, and the Normal Formula of Polar Reactions.*

THURSDAY, JULY 22.—MORNING SESSION.

DR. JACOBY read the report of the Committee on

ELECTRICAL DOSAGE.

It stated that special rules for the application of electricity do not exist. Individual differences between patients and diseases make this impossible.

DR. GRAY believed that some thought should be taken of the substance of which the electrodes were made, and also as to their coverings, as it would make a great difference in calculations; again, with what the sponges are wetted would make a difference; the temperature of the water must be taken into consideration, his rule being to

use water as hot as the patient can bear. The question of a galvanometer should also be considered.

Dr. Lloyd had felt a great deal of dissatisfaction in using electricity, especially in electro-gynecology, because he did not know what strength would produce certain effects; the area of surfaces making differences in the strength; the question to decide is how much current will produce a certain catalytic action; for instance, if you want to promote absorption of an inflammatory deposit in pelvic cellulitis or in stricture of the urethra, etc.

Dr. Weber stated that, so far as his experience went, an electrode, no matter of what it was composed, should be if possible square; he had discarded the use of oval ones. He thought the dosage of electricity an individual matter, and that no committee could lay down laws for its administration.

Dr. Massey thought there should be a standard milliampère meter. He thought it desirable that the Society should purchase a good meter for the use of instrument makers, to be kept in New York City. He thought the committee had devoted too much time to therapeutics. The points to be gained are determinations in milliampères; for instance, how many milliampères are required to produce a contraction in a certain muscle. He had recently made some preliminary experiments in that direction with the cathodic closure and the anodic closure; he thought a certain number of observations on normal muscles were necessary to determine the number of milliampères required to produce a contraction.

Dr. Jacoby, on behalf of the Committee, replied that he felt that the idea of the committee was lost to view. The committee was on dosage, not on galvanometers. The covering of electrodes did not enter into their consideration; Ohm's law covers that. If the resistance is increased, current strength must be increased. The reason why no particular galvanometer was recommended was because they did not care to recommend any particular instrument maker; all galvanometers have their objections; a selection must be left to individual choice. It would be a difficult matter to find a standard galvanometer; it would be difficult to find one remaining the same after a year; the best and most delicate he had ever used have changed; they are subject to magnetic influences. As regards the amount of current strength required to effect a certain result, if the committee were to inform the Association that a certain number of milliampères would cure a certain disease, it would be only individual experience. As regards the question of electrical dosage, he did not think absolutely normal muscles would give similar contractions. The recommendations of the committee are a plea for accuracy, to use the milliampère as has been done, but when you do describe the amount of current used, give the number of milliampères, and style of electrode used.

Dr. Amidon then read a letter from Dr. Fovel, of Zurich, and exhibited a photograph which he had sent of a

MICROCEPHALIC GIRL

who had three sisters also afflicted in the same manner, and who had since died. The parents were natural in appearance, and enjoyed good health.

Dr. Wilder stated that he wished to avail himself of this opportunity to retract what he had said yesterday in relation to the brain of the Chinaman, as he had since had an opportunity of carefully examining the same, and thought it the most remarkable brain he had ever examined, although there was nothing to point to its Mongolian origin. It presented some remarkable features, and in a great many ways pointed to our ape ancestry.

Dr. B. G. Wilder then presented some

NOTES ON THE BRAIN; AN ADDITIONAL CASE OF INDEPENDENCE OF THE PAR-OCCIPITAL FISSURE.

1. In his recent paper on the par-occipital fissure, he stated that among forty-three reliable specimens and figures accessible to him, the par-occipital was continuous with the parietal in twenty-one, and independent in twenty-two. The brain of a negro child at birth, lately prepared by him, had two fissures wholly independent on the right, and barely united by a shallow junction on the left side, the ental correlative of the occipital fissure in an early fœtus.

2. In a fœtus estimated to be about three months of age, opposite the occipital fissure there was a distinct ental ridge, so that the entire thickness of the wall was there folded. A similar ridge is figured by Tiedemann, but not named or described; that without further observations he could not determine as to whether it disappears in the adult or persists as a more or less distinct elevation, known as the bulbous cornu posterioris or eminenta splenalis. Even if transitory, it adds another to the list of fissures, including the calcarine, hippocampal, collateral, and Sylvian.

3. The fœtal extension of the proplexus is to the end of the post. cornu. This was the case in a fœtus estimated to be seven months old; the post-cornual extension is apparently in process of atrophy; there were indications of a like extension into the precornu. The extension might be expected in view of the great volume of the plexus at a still earlier stage.

4. Points illustrated by the transection of the fœtal brain. Six points of morphological interest were noted, most of them indicating that the thalami increase in width as development proceeds, so that in the adult human brain they form, or seem to form, part of the floor of the procœles or lateral ventricles, which is not the case in other mammals, excepting, perhaps, the primates.

Dr. Mills then presented the brain of a baboon and of a negro, sent by Dr. Formad, of Philadelphia, but time was not afforded for a careful examination.

Dr. Leonard G. Weber, of New York, then read a paper

ON SOME AFFECTIONS OF THE NERVOUS SYSTEM ASSOCIATED WITH TUBERCULOSIS.

He remarked that in phthisis there is a condition of the mind in which cheerfulness predominates, but there is one, also, in which the most gloomy thoughts are indulged in, frequently ending in insanity, and it was of this latter that he wished to speak. He illustrated his remarks with clear and detailed histories of two cases. He thought that the indicated treatment partook somewhat of Dr. Mitchell's plan of treatment; but in these cases one difficulty would arise, which is to make them rest, as he thought it would be an extremely difficult matter to confine such patients to bed. He thought that

in those cases where mental aberration occurs, it is desirable to examine the lungs, as often the mental symptoms appear long before any positive diagnosis of phthisis can be made.

Dr. Gray remarked that these cases have puzzled him sometimes, so much so that he has sent his patients to a specialist in auscultation for an examination of the lungs. He thinks there is such a thing as tuberculous poison in the blood long before it produces organic changes. A case was quoted by him in which the mental symptoms predominated, and a consultation was called as to what really was the trouble. The patient dying, an autopsy was made, and evidences of tuberculosis discovered. He thought Dr. Weber had looked at the prognosis of these cases in a rather too despondent manner, as he knows of several cases which have recovered and enjoy excellent health. As to treatment, he agreed with Dr. Weber, and the point is to secure absolute restriction of all expenditure of energy, giving them the largest quantity of food they can take.

Dr. Weber replied that he was glad to hear hygienic measures emphasized, and also the great point of diet discussed; in Germany this is very fully realized, and he has himself, while visiting there, seen it carried out with excellent results.

Dr. Van Bibber, of Baltimore, stated that he is in the habit of seeing a great many cases of melancholia, and that he makes a custom of always examining the lungs.

Dr. Parsons, of Sing Sing, New York, stated that he has had charge of a large number of cases of melancholia, and had noticed the frequency with which phthisis is associated with it; he has observed that frequently the disease of the lungs will run into the second, and even the third stage, without objective symptoms.

Afternoon Session.

A DECEREBRIZED FROG.

Dr. Wilder exhibited a frog which he had decerebrized more than seven months ago. The wound healed perfectly, and the animal has enjoyed perfect health ever since; the operation was performed on December 9, 1885. A minnow or piece of fish is given to him twice a week, but it requires two persons to feed him, as one has to open his mouth and the other puts the food in, and here a curious phenomenon presents itself—if a piece of the minnow's tail projects from his mouth, the frog, while making an effort to swallow the fish, will, with his fore feet, endeavor to pull the fish out of his mouth. The movements of the frog also are superinduced, for after remaining in one position for some time, he will slightly change his position. If placed upon a convex surface and this be slightly revolved, he will endeavor to balance himself. Dr. Wilder sometimes, while carefully observing him, would notice that he would wink with only one eye, but when irritated he would wink both eyes. He also wondered whether the animal ever slept, as on the least jar, when apparently asleep, he would instantly open both eyes. (The frog was then fed before the meeting, and exhibited the phenomena described.) Dr. Wilder remarked that he would like to know if a frog under these conditions could be hypnotized. Just before coming into the meeting, while removing the frog from his box, one of his hind legs was accidently broken, but it does not appear to cause any inconvenience, and apparently no pain is felt. This frog also can be laid upon its back, and will remain there without the aid of mesmerism. The question also occurred to him whether this frog was capable of procreating his species.

Dr. Gray asked if he had ever hypnotized this frog.

Dr. Wilder replied that he had not.

Dr. Mills thought it would not have that part of the brain requisite for hypnotization.

Dr. Sachs stated that he was in Goltz's laboratory for some time and saw frequent exhibitions of frogs, but nothing was removed, the parts were simply severed. He thought Dr. Wilder's method more thorough, and was surprised to see the frog live so long. He then asked Dr. Wilder if he had ever put a block of wood in front of the frog and then irritated it, to see if it would jump over it or avoid the obstacle.

Dr. Wilder replied he had not.

Mr. Jastrow, of the Johns Hopkins University, stated that he had a series of frogs at one time: 1, normal; 2, the same as this one; 3, the optic lobes were also removed; 4, everything removed. He had found that the more brain tissue was removed the more readily would the frog remain upon its back. These frogs could also be etherized.

Dr. Wilder remarked that where the parts were severed subcutaneously there might be a question whether union did not occur.

Dr. Zenner, of Cincinnati, stated that in the hands of some experimenters there had never been reproduction in the cord, but he did not know how it was in the brain.

Dr. Gray suggested applying a little acetic acid to one of the frog's legs, to see if he would try to brush it away.

Dr. Wilder replied that he had not neglected to do so, and with the usual result.

Mr. Jastrow said that he found a frog that had lost one leg, so he applied a little acid to its body. First the animal tried to brush it off with the sound leg, and afterward with the stump of the other.

Dr. C. L. Dana, of New York, read a paper on

PSEUDO-TABES FROM ARSENICAL POISONING.

The object of his paper was to report two somewhat unique cases of arsenical paralysis, presenting the symptoms of tabes dorsalis; next to show that arsenical paralyses, like those from diphtheritic poisoning and alcohol, present two types, one of which might be called the mixed or ordinary form, and the other the ataxic form; and to show also, if possible, that the ordinary teachings that arsenical paralysis is due to a diffuse myelitis is not correct, and that these paralyses are really the result of a multiple neuritis. The conclusions arrived at were: 1. That a disease resembling locomotor ataxia may be caused by arsenic given medicinally, absorbed from wall papers, or taken in a single large dose. 2. That arsenical paralysis of this type and arsenical paralysis of other types are not due to a diffuse myelitis, as has been taught, but to a multiple neuritis. 3. That arsenical paralyses, like those from diphtheria, alcohol, and probably other infections and poisons, are of two types: *a*. The ordinary mixed, motor, and sen-

sory paralysis; *b*. the pseudo-tabetic form, in which there is no pronounced motor paralysis, but marked sensory troubles, especially ataxia.

DR. MILLS said that the subject of arsenical paralysis was one in which he was especially interested. The case which Dr. Dana mentioned, and which he had reported, was one of poisoning from Paris green, He had reported a series of cases. He thought that in these cases of metallic poisoning the true way to look at it was, not to regard it as a myelitis, neuritis, or myositis, but to regard it as a protoplasmic poisoning; that the poison, as the causative agent, affected the nervous protoplasm in varying degrees, according to circumstances; and, although Dr. Dana had asserted his reasons for regarding this disease as a neuritis, he regarded it as more extended. In the case just mentioned, other members of the family partook of the poison. One died with symptoms of encephalitis; one or two came near being permanently paralyzed; and others remained with symptoms of neuritis. This, he thought, indicated that a broader and better generalization should be made.

DR. SINKLER stated that he could recall some points in the case Dr. Mills mentioned. There was atrophy of the muscles of the upper extremities, atony of the bladder, marked reaction of degeneration, but he suffered no pain.

DR. MILLS thought the patient had suffered considerable pain, and that anodynes were used.

DR. JACOBY stated that he reported a case of lead poisoning in which the diagnosis was very difficult indeed. The diagnosis was pseudo tabes due to lead poisoning. He expressed the opinion that the ataxia was due to a lesion in the cord, but now desired to correct himself; if he had that case here, he would say it was multiple neuritis due to lead poisoning. The patient is entirely well now, he stated, with absolute return of the patellar-tendon reflexes.

DR. SACHS remarked that in speaking of these cases we called them arsenical and lead cases as though the symptoms were similar; these poisons have also been compared to the poisoning in diphtheria. Now we know that in infections the poison spreads to the most distant parts of the body: why should it not in these cases be peripheral as well as central?

DR. MILLS thought arsenical poisoning could produce a neuritis, myelitis, or cerebritis, or all of these together.

DR. DANA, in closing the discussion, stated that perhaps he had put his cases rather stronger than he intended, but the ordinary teachings are that arsenical poisoning produces a myelitis. The main point he desired to bring out was that there is a form of the disease resembling locomotor ataxia; he thought this should be known. Again, he wished to show that arsenical poisoning can bring about a multiple neuritis.

DR. SINKLER read a paper on

THE TREATMENT OF FACIAL SPASM.

He entered at length into the results which had been secured by others in these cases, quoting an interesting case that had came under his observation, in which the biceps of the right arm was affected. All the teeth upon the right side of the mouth were removed, but no relief resulted. Gelsemium, cannabis-indica, quinine, eserine, nitro-glycerine, and electricity were used, but without any marked result; in fact, the pain now extended to the right thigh and leg. The operation of stretching the facial nerve was decided upon after consultation. From the date of the operation up to the present time, there had been no spasm. The force used in the stretching of the nerve was estimated to be about twenty-five pounds. He had seen the patient some four weeks after the operation; the right side of the face was palsied; she could not shut the right eye, and the corner of the mouth hung down; but the patient assured him she was willing to remain that way rather than return to the former terrible twitching. He thought in this case the disease was of peripheral origin, and that in these cases, after therapeutic measures have failed to relieve, the operation of stretching should be performed without any unnecessary delay.

DR. MASSEY remarked that he saw a case a few days since which had been brought to him a year ago; at that time he applied the galvanic current, and during the following year the patient had been entirely free from pain.

DR. DANA thought that statistics were rather fallacious, also that some cases might get well with a slight operation, or perhaps none at all. It must be taken into account that the case mentioned by Dr. Sinker had only been operated upon four months ago.

DR. E. D. FISHER, of New York, made some

REMARKS ON EPILEPSY,

enumerating the various phenomena occurring during convulsions, relying chiefly upon the use of the bromides for the relief and cure of the disease.

DR. SACHS, of New York, read a paper entitled

INTRACEREBRAL HEMORRHAGE IN THE YOUNG.

After referring to the increased attention neurologists were paying to the cerebral accidents of children, the writer recorded his conviction that intracerebral hemorrhage is more frequent in children than is generally supposed, and that many cases of this sort are classified under the head of meningeal hemorrhage. Dr. Sachs then reported two cases of intracerebral hemorrhage; one in a boy two and a half years of age, and the other in a young man of nineteen years. The first case was given in full, in order to place the diagnosis upon a firm basis. The child had typical right hemiplegia with aphasia, without coma convulsions at the time of onset. The onset was slow, aphasia setting in first, paralysis of the arm and leg some hours later. The recovery was typical of that which takes place in many cases of adult hemiplegia from apoplexy.

The writer gave the reasons why he held that in this case the apoplectic attack was due to hemorrhage rather than to embolism or thrombosis. As regards the differential diagnosis between meningeal and intracerebral hemorrhage, the lack of convulsions seems to be of unusual significance. In meningeal hemorrhage convulsions are invariably present, and their absence might argue, other things being equal, in favor of intracerebral hemorrhage. In the second case the young man had had two apoplectic attacks exactly one year apart. The histories of these attacks were very similar to the one given in the first case. In the first mild attack all symptoms developed and receded typi-

cally; in the second attack the onset was slow, there was coma lasting for over eighteen hours, and recovery is not yet complete, contraction having set in in the affected arm. No convulsions at any time. There was no specific history.

Using these two cases as a basis, the author of the paper entered upon a discussion of the changes in the walls of the cerebral arteries, permitting an effusion of blood into the brain substance. Autopsies on this condition are very scarce, but there is good reason for supposing (reference was made to some recently reported cases of Dr. Osler) that miliary aneurisms occur in young children, and that fatty degeneration of the cerebral arteries, permitting transudation of blood through the vessel-walls (Recklinghausen), is a not infrequent condition.

Discussion was invited on the following points:

1. Frequency of intracerebral as compared with meningeal hemorrhage in young persons not the subject of specific disease.

2. The value of convulsions as a factor in differential diagnosis.

3. Pathological changes in the walls of the cerebral arteries in the young.

Dr. Mills thought that intracranial hemorrhage occurs in the young more frequently than is imagined. He had made three autopsies in children from the same family, dying within a few days after birth. He found extensive meningeal hemorrhage in one case.

Dr. Lloyd then reported two cases occurring in young men, one eighteen years of age and the other younger. In one case it followed close upon an attack of diphtheria. In the other, the patient complained of not feeling well in the morning, and was compelled to go back to his bed. When Dr. Lloyd saw him he had passed into coma, with convulsions on the right side of the body. The patient was a confirmed inebriate. When first seen, coma and convulsions had set in, waves of spasm sweeping over the paralyzed side; there was also extreme lateral deviation of the eyes; right facial paralysis, face being drawn to the left side. He was a little puzzled about the case, as he did not expect to find a confirmed drunkard at the age of eighteen years. The boy died in a few hours, and the case had to be handed to the coroner. At the autopsy there was absolutely nothing found which would account for the conditions mentioned.

Dr. Zenner thought that in these cases it was difficult to tell, except by the autopsy, whether it is hemorrhage, thrombosis, or embolism; he considered that mere symptomatology is not sufficient in these cases for a diagnosis to be based on.

Dr. McNutt spoke of a case in which there were convulsive movements on one side of the body, and also of the face. At the post-mortem the brain was examined very carefully, but there was simply œdema of the brain; there was no hemorrhage on either side of the brain.

Dr. Amidon thought the lesion might occur in the circulatory apparatus, more especially the arteries. The most natural thing to look for, he thought, would be miliary aneurism, as remarked by Dr. Sachs, although he was inclined to think that was a disease of adult life. He had seen pathological specimens where the aorta was narrowed, the patients dying very suddenly from intercerebral hemorrhage. Barié has reported twenty-seven cases in which he states that the disease is almost always below the origin of the left subclavian artery; some of the patients previously suffered from vicarious menstruation or epistaxis.

Dr. Sachs called attention to the fact in regard to prognosis; he thought it made a great difference whether the child suffered from convulsions or not.

Dr. Zenner, of Cincinnati, presented a case of

AUCTIONEERS' CRAMP,

remarking that it came under that large group of cases termed professional neuroses, which generally affected the muscles of the extremities; but in this case the muscles of the face only were involved, mainly, if not entirely, those of articulation; and, so far as he knew, nothing similar had been reported, and therefore he thought it of great interest to the profession. He then gave the following history:

Patient a male, forty-five years of age, of good family history, had always enjoyed excellent health, following the occupation of an auctioneer. In March, 1885, was confined to his house for a month with an ulcer upon one of his legs. During that time he enjoyed good health, with that exception. He had been an exceptionally busy man, calling sales from morning until night, often refusing to leave the sale to obtain his lunch. After recovering from the ulcer and resuming his calling, he noticed, at the first sale which he cried, that he had some difficulty in his articulation, but it was not such as to cause him to desist from speaking. After three or four successive sales, during which time the difficulty kept increasing, he was compelled to abandon his business entirely. He now began to notice occasional slight difficulty of articulation in ordinary conversation, and also some subjective symptoms, consisting of a sense of fatigue of the muscles upon the left side of the mouth after talking, a sense of throbbing, and a dragging sensation at the left corner of the mouth. Dr. Zenner saw him about a month after these symptoms were first felt. At that time there was considerable general nervousness shown; further than this there has been no symptoms of disease, his general health being excellent. His weight is about the same, appetite fair, and sleeps well; general motility, on application of electricity, normal, as are also the tendo-reflexes.

He then presented the patient and drew attention to the fact that when the face was in a state of rest there was a certain increase of depth of the nasal fold, and a drawing-in of the left corner of the mouth which was due to a tonic spasm; the patient also felt a certain sense of pressure there, as though the cheek were pressed against the teeth. In ordinary conversation the contractions of the muscles are scarcely visible—in fact, some of his acquaintances have not noticed anything abnormal. He then requested the patient to call five rapidly as in calling a sale; on the rapid repetition of the word the contraction of the muscles upon the left side of the face was very marked, these being tense like a rigid band, while the right corner of the mouth was drawn upward, making it almost appear as though the contraction of the muscles was upon the right side of the face, while the left, to an ordinary observer, would appear almost normal; the patient also complained of a sense of very painful

fatigue on left side of face. The orbicularis oris in this case seemed to be the muscle principally involved, but other muscles were somewhat affected. He also stated that the patient himself discovered that by putting the end of a pencil under the lip and pushing it upward to relieve the tension, he could articulate much better (this effect was proved by the patient before the meeting). In this case he applied electricity, massage, and manipulation, the muscles responding to the current as promptly upon one side as the other. But this treatment had effected no very satisfactory results as yet.

Dr. Wilder remarked, that from where he was sitting, the difficulty seemed to be upon the right side of the face.

Dr. Jacoby stated that the same idea had occurred to him.

Dr. Van Bibber asked whether the patient had ever had any previous affections of the face or ears.

Dr. Zenner replied that he had not, and that the first thing the patient noticed was a slight heavy aching feeling in the left corner of the mouth, which had gradually increased. He thought that the muscles of the affected side being brought so constantly into action by one continual effort might account for the condition of subjective symptoms presented. Poore, in his analysis of seventy-five cases of writer's cramp, speaks of the neurosis being due to a persistent activity of certain muscles where the act of prehension is brought into play, and somewhat resembles this case in requiring an effort differing from ordinary conversation. The patient himself has never accepted the fact that his calling of sales has produced his difficulty, but rather attributes it to having taken cold while confined to his house for that month, as he was in the habit of sitting by an open window. Dr. Zenner did not dispute that there might be some other element involved. He concluded that although he had administered the iodides, electricity, etc., he thought that if these were pushed a little further, together with more thorough application of massage and electricity, and no better results secured, it would be advisable to resort to stretching of the facial nerves of the left side.

Dr. Jacoby asked how drinking affected the patient.

Dr. Zenner replied there was no contraction unless an effort was required.

Dr. Jacoby asked whether there was any specific history.

Dr. Zenner replied there was none, so far as he had been able to learn.

Dr. L. C. Gray inquired whether he had been examined with the ophthalmoscope.

Dr. Zenner stated that he had sent him to a specialist for that purpose, and there was nothing abnormal in that respect.

Dr. Gray then asked whether, on examining him with galvanism, any difference was observed in the contraction of the muscles.

Dr. Zenner replied not in the orbicular oris, to which he had specially directed his attention.

Dr. Lloyd asked whether the patient suffered from vertigo.

Dr. Zenner replied he did not.

The President remarked that the case was one of extreme interest, and that he was inclined to regard it as a professional neurosis. He cited a case in which he had been called in consultation by Dr. C. H. Turnbull, of Philadelphia, to see an actor who was compelled, in his part, to distort his face to a peculiar expression requiring great effort; the result of this effort was followed by double vision, which at last compelled him to seek Dr. Turnbull's advice. He was then suffering from paralysis of one of the recti muscles. There was one peculiarity, and that was that with an increased voluntary effort the patient could draw the affected eye into its normal position.

Dr. Mills thought cerebral exhaustion was a factor in this case, and stated that although this condition lasted some time, the patient had almost recovered. He also thought this patient of Dr. Zenner presented some of the appearances of secondary contracture, the case presenting symptoms which he had observed in cases of peripheral neuritis, and which had spread and involved a large part of the muscles of the face. He thought the line of treatment suggested by Dr. Zenner very good: rest to the parts, and an endeavor to restore nutrition, being most desirable. He also thought that if recovery was delayed under these conditions, stretching of the nerve should not be postponed too long, that it was distinctly indicated when other means failed.

Dr. Gray remarked that it would require a most careful examination by the electric current to form a differential diagnosis, but he had thought there was a difference of power of the two sides while making his examination, and that the patient was paralyzed on one side of his face, and that there was a difference in the closing of the eyes, also while closing his lips upon his fingers it occurred to him that there was loss of power upon the left side.

Dr. Gray then asked whether his tactile sense was perfect.

Dr. Zenner replied that it was.

Dr. Weber remarked that the case did not seem to start as a neurosis, and that the contraction of the muscles seemed to be more clonic than tonic; this, to to his mind, was more secondary, as this is often found in post-hemiplegic conditions. He thought, as had been remarked, that galvanism was indicated.

Dr. Zenner, in closing the discussion, stated that he would not deny that there was neuritis present, though there was no direct evidence of it. He had not pretended to say what is the exact seat or nature of the disease in the patient. In most cases of professional neuroses the nature of the disease is altogether obscure, probably there may be a different pathological basis in different cases. In a number of cases of writer's cramp neuritis appeared to be the cause. But that his own case was properly classified with professional neuroses, was based upon the features peculiar to almost all such cases: first, that it seemed to have as its cause the excessive use of the affected muscles; secondly, that the peculiar symptoms were brought out in each instance only when those muscles were brought into play by a voluntary act.

When he attempts to repeat a word rapidly there is a rigid contraction of the muscles at the left angle of the mouth, pressing it firmly against the teeth, and at the same time some of the muscles on the right side contract, though much less forcibly, pulling the mouth toward the right side. The elevator muscles of the left upper lip alone take no part in the spasm, so that it appears as if there were paralysis of that side of the face,

and the face was merely drawn to the other side. But the patient revealed that there was no paralysis of these muscles by exposing the upper and lower teeth, by moving the mouth to one side and the other, all of which was as well done on the left side as right. The strength of the elevator muscles of the left upper lip was further shown by the patient's holding the lip elevated while the examiner made forcible and persistent effort to pull it down.

The speaker had repeatedly examined the patient for paresis of some of the muscles, which is often the basis of spasms of various kinds, in cases of writer's cramp as well as other kinds of spasm, but has never been able to detect any marked weakness of any of the muscles.

Friday, July 23.—Morning Session.

Dr. Wilder exhibited a beautiful specimen of

A median section of the head of a murderer injected with alcohol,

and remarked that the features of the brain which was thus hardened and exposed *in situ* are to be discussed at a future meeting, in comparison with the brain of another murderer. The specimen was an illustration of the value of the method of continuous arterial injection with alcohol which has been applied to other heads, to brains, and to entire bodies, in the anatomical laboratory of the Cornell University. The main features of the method are: *a*. Reception of the head within twenty-four hours after death. *b*. Preliminary washing out of the vessels with chloral, to which perhaps weak alcohol might be preferable. *c*. Continuous injection of alcohol for a week. *d*. Continuity secured by a pressure of eighty millimetres of mercury, which was afterwards reduced to forty millimetres, when the flow became somewhat free. *e*. Gradual increase of the strength of the alcohol from sixty-five to ninety per cent. *f*. Maintenance of a low temperature, 8° to 11° C. *g*. Accurate division of the head with a fine saw acting in a mitre box. *h*. The small cost; the injected alcohol represented forty-one and a half litres and ninety-five per cent., but about two-thirds was regained, so at three dollars per gallon it would not cost eleven dollars, and at seventy-five cents (free of tax) only three dollars.

Dr. Mills stated that he did not, ordinarily, care to use alcohol for the preservation of specimens for gross study, but used in this way it might be different in its results.

Dr. Amidon remarked that a little corrosive sublimate put in the alcohol might secure still better effects.

Dr. Mills asked whether there would not be great difficulty with a brain preserved in this manner in separating the pia mater from the surface of the brain; whether the brain would not be considerably torn. The old method was to put the brain in a solution of chloride of zinc; the membranes could then be readily stripped off in a few days, and weak alcohol afterwards used.

Dr. Wilder replied that the question of Guiteau's brain could have been more fully discussed if it had been hardened in the skull; and he felt this very desirable in order to preserve its shape. He hoped to combine with this process the preservation of the brain. so that the gyra and fissures could be studied. He has been preparing brains for the museum of the Cornell University for some years, and has found alcohol to answer all requirements for the purpose of microscopical examinations. He insisted also that the brain should be in the dura—in its own bag, so to speak; then hanging the brain over a pail by the dura, injection with alcohol is commenced, the brain then immediately fills the dura as though it were in the skull, and no pressure upon any one point exists.

Dr. Jas. H. Lloyd, of Philadelphia, read a paper on

Moral insanity: a plea for a more exact cerebral pathology.

It was devoted to a criticism of those who—in the manner referred to by Locke in his "Essay Concerning Human Understanding"—confuse in their psychology the *power* with the *agent*. They personify the "faculties," and regard them as distinct agents, each with its own province and powers. This method is inherited from the philosophers, and was shown to have produced the artificial distinctions between "mind" and "brain," and to have worked confusion, especially in the Scotch school, in the use of such terms as "consciousness" and "idea." The alienists in their writings have not escaped these errors, and many of the artificial distinctions, classifications, and symptomatologies which abound in the books are distinctly traceable to them. Brief allusion was made to the definitions and tests which have been promulgated in the courts, and are found in the writings of Coke, Hale, Blackstone, Shelford, and Chitty. To these we are indebted for such distinctions as "civil and criminal," and "partial and total" insanity. Also to such tests as *delusion* and *knowledge of right and wrong*. These were all shown to be more or less artificial and incomplete from the very standpoint of Locke's criticism—*i. e.*, they ignore the individuality of the brain as one acting *substance*, and grant to the faculties, or several activities, of the cerebral organ each its own autonomy, and its own disorders and diseases. They erect one symptom into a whole disease, and insist upon the presence or absence of this as a test.

The writer proceeded to an examination of the claims of so-called *moral* insanity, as presented by some of the most advanced medical psychologists. This claim proceeds upon just such an abstraction as the reader was cautioned to avoid. It presupposes a distinct moral faculty, which may remain undeveloped in a mind intellectually normal, or may become diseased without affecting the other faculties. This was almost the worst form of abstraction and personification that had appeared in psychology. It is impossible to conceive of a *moral* or *emotional* act of mind which does not include the so-called *intellectual* faculties. In fact, in these acts it is the cerebrum taking on only different (and rapidly changing) modes of action. To say that it is diseased in one of these modes and not in the other, is a sophism. It is more nearly correct to say that in an insane man it is the whole mental (cerebral) act—memory, judgment, emotion, and will—which is wrong, as these are all but *modes of action* of one diseased substance, the cerebrum. More careful analysis would prove this in the cases which are cited in the books as "moral imbeciles," and which include evidently such diverse types as hysteria, katatonia, paranoia, imbecility, melancholia, and even delusional insanity. The subject has importance because it is often relied upon to acquit a certain class

of lunatics in the courts, and almost invariably proves to be a broken reed to him who leans upon it. The paper closed with a reference to the labors of the experimental physiologists, especially Ferrier, who have demonstrated the localization of many sensory and motor areas. It is not possible for them to demonstrate the localization of "judgment" and "emotions." These are phases of all cerebration, and, as Ferrier distinctly states, exist both in the sensory and motor regions.

The President stated that he had great respect for the metaphysical and practical knowledge of Dr. Lloyd, but he must differ with him on some points; though, perhaps, it might be differences upon terms or expression rather than facts. He did not see what was to be gained by carrying out of the ideas as expressed by Dr. Lloyd in regard to nomenclature and classification. In using such terms as monomania, paranoia, and coming to kleptomania, or typhomania, and even some of those small forms of so-called phobias, we do it understanding what we are doing, but we do it as a matter of science and study. Again, Dr. Lloyd remarked we did not bring forth the cases to prove the propriety of the use of such terms. He thought the writer might not be thoroughly acquainted with all the cases produced in literature which led us to have a right to say that there are cases which deserve this designation of moral insanity. Men who have advocated the term moral insanity are perfectly well aware that in every case, unless it is where there exists general paralysis, physical and mental, there is also exhibited mental impairment. The cases to which should be applied this term, "moral insanity," are cases which have all through life exhibited a preponderance of moral defect, a decided evidence of moral impairment, though in many cases one may find but little intellectual impairment. He agreed with Dr. Lloyd that the term had been used indiscriminately, and had been made to cover cases of hysterical insanity, katatonia, etc. He thought that while paying tribute to Dr. Lloyd's scientific and and literary abilities, an acceptance of his ideas would rather retard than aid the advance of science in this direction.

Dr. Gray remarked that there are three classes of insanity, mania, melancholia, dementia; all other forms being simply forms or degrees of these. He did not see how we were to do away with the term, as it is an extremely difficult matter to draw the line sharply; but still we should know what it means and understand it.

Dr. Parsons thought the laity objected to it because it embraced so many forms of the disease, it may mean emotional or wicked insanity. But in speaking of a man as having a diseased liver, we do not mean to say that he is not sick. His views, he thought, had been well expressed by Drs. Gray and Mills.

Dr. Mills said he would like to ask a few questions: First, whether in discussing the question of insanity we have any right to use such terms as moral and immoral insanity. If so, in what sense should they be employed? Do not those who see cases of insanity frequently see those who present overwhelming predominance of moral or immoral phenomena? In a case, the trial of which lasted four weeks, the man being what we would term a delusional monomaniac, he plead his own case before the court, and the jury declared him sane. There was little or no immoral effect in this man's case; one could not use those terms.

Dr. Gray asked why we could not have localization in regard to the actions of the mind; if we can have mental symptoms by impairment of localized areas, why can we not have localized insanity by impairment of these areas?

Dr. Lloyd, in closing the discussion, remarked that he had in his paper already answered the questions on the subject of moral insanity; that it was something more than mere difference in terms. As to our courts, we should not despise them; they have a right to expect that a physician should express himself intelligently. In the case of a man killing his wife after years of happiness and affection on either side, he may say he killed her because he loved her; his brain is affected, his mind, his intellect is affected. It is, as was said in the paper, a mere word differentiation, it is not a differentiation of things. As to the subject of paranoia, it is a congenital defect of the mind, it comes from the mother's womb, it is hereditary.

Dr. Jacoby presented, for Dr. Rudisch,

A NEW PORTABLE BATTERY,

the chief point being that the cells containing the fluid can be left at home and the zincs and carbons replaced in the box. A current can be obtained from them after being once charged at the end of four weeks. Between the carbons and the zincs a piece of stout asbestos paper is fastened by means of a few thin rubber bands. The fluid used in the battery is composed as follows: sal ammoniac, one and a half pounds, add six pints of water. The asbestos paper retains in its pores a large amount of moisture, acting as a large voltaic pile.

A resolution was adopted approving of the proposed

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS,

and the following Committee of Conference were appointed: Drs. L. C. Gray, of Brooklyn; J. Van Bibber, of Baltimore; W. Sinkler, of Philadelphia; E. C. Seguin, of New York; and Philip Zenner, of Cincinnati.

Adjourned.

NEWS ITEMS.

Death of Prof. William Ripley Nichols.—Prof. William Ripley Nichols, a chemist well known in this country, died at Hamburg, Germany, on Wednesday, July 14th. He had been in poor health for the last four or five years, having been affected during that time by a peculiar disease of the lungs, which developed itself suddenly. He was Professor of General Chemistry in the Massachusetts Institute of Technology. He was one of the earliest graduates of the Institute, his class (that of 1869) being the second to leave its walls. He was the author and compiler of several admirable text-books. He was about forty years of age. As a chemist his work in water analysis was well known.

Death of Dr. Wilhelm Frobelius.—The death is announced, in the Russian papers, of Dr. Wilhelm Frobelius, formerly a great ophthalmic surgeon in St. Petersburg. When ophthalmoscopy was in its infancy, Dr. Frobelius wrote largely on the subject, and he was the first to perform iridectomy for glaucoma in St. Petersburg in 1857. He was appointed inspecting offi-

cer to the foundling institutions in 1864, and gathered under him a number of young subordinates of great ability and scientific attainments, who have rendered the greatest service to the important establishments committed to their charge; he obtained the appointment of a prosector, the first of these officers in the country. He also established, as early as 1868, an institution in St. Petersburg for calf lymph vaccination.

The New Iowa State Board of Medical Examiners met recently and adopted rules for granting certificates, and a schedule of minimum requirements of medical colleges to secure recognition, was adopted. A list of nearly three hundred medical schools was adopted to be recognized by the Board. Nearly one hundred colleges were refused recognition. Certificates will be refused upon failure to present a diploma from a recognized medical college, failure to submit the proper affidavits, or, upon examination, to answer correctly eighty per cent. of the interrogatories propounded. In all cases recommendation of good moral and professional standing must be given. The Board held meetings in other parts of the State, beginning at Dubuque, July 29, Mason City, Fort Dodge, Sioux City, and Council Bluffs, stopping two days only at each place, when examinations will be had and applications received for certificates, and diplomas verified. These meetings are held for the convenience of physicians in different parts of the State. All midwives in the State are required to conform to the same rule as physicians, and secure a certificate to practise.

Unwholesome Canned Peas.—The Health Board of Brooklyn has been looking into the healthfulness of French peas, and has condemned large quantities on account of injurious articles used in their preparation. The names of the brands which the Brooklyn authorities have decided to be unhealthy are the following; Henry Deler et Cie, Dandicolee et Gaudin, Bordeaux; J. Nouville, Bordeaux; Perry fils, A. Lazun, E. Estibal, Bordeaux; E. M. Daelzin, Bordeaux; D. M. Auzone, Bordeaux; L. Carpe et Cie, Lunéville; Soule et Prise, Bordeaux; F. Fitonaine, Bordeaux; John Moir & Son, London, Aberdeen, and Seville; Charles Julien, Paris; Barton fils, Fontaine Frères, Paris; G. Talbot, Bordeaux. These names are given, as it may be useful to know what particular brands are held to be unhealthful. Five hundred grocers in Brooklyn have been notified not to sell peas coming from these houses.

Congress of Naturalists in Berlin.—This year's assembly of naturalists and physicians in Berlin promises to be on a grand scale. It has been decided, says the Berlin correspondent of *The Lancet*, through the initiation of the German Colonial Association, to form a special section for Medical Geography, Climatology, and Hygiene, in which observations and personal experiences made in foreign countries, especially in the tropics, are to be discussed. The German Colonial Association has undertaken to make the necessary preparatory steps. Geheimer Medicinalrath Hirsch is the Chairman for the formation of such a section, the cooperation being secured of competent men, who, in the general interest, would be willing to assist personally at these discussions. The following are the subjects which will occupy the attention of the section: 1. Acclimatization in general: (*a*) The fitness for acclimatization of special races; (*b*) Hygiene of the white races in the tropics. 2. Education; capability of training the natives to work. 3. Sanitary and educational statistics in respect of German colonies and dominions under German protection. Professor Waldeyer, chief of the Anatomical Section, has proposed the appointment of a special session for discussing the subject of Gastrula of the Vertebrata, and offers to introduce the debate by a short report on the results of discoveries up to the present time. Professor Hartmann will conduct the investigation of the anatomico-zoötomical collections, for which the building of the old Exchange has been chosen.

Prehistoric Dentistry.—Dr. Marter, of Rome, has for some time past been devoting considerable time to examining the skulls in the various museums in Italy, and in Etruscan and Roman tombs, and he has given an account of his investigations in the *Independent Practitioner*. In the ruins of one of the Etruscan tombs, about the date 500 B.C., he found a partial denture. It was an arrangement for holding in position three upper artificial teeth by banding them to the adjoining natural teeth. These teeth were carved out of some large animal's tooth. Another denture found in an old Roman tomb consists of two natural teeth fastened by means of soft gold bands to the contiguous teeth. The most recently opened and oldest Etruscan tomb yet discovered in Italy was lately excavated at Capadimonti; this tomb belongs to the sixth century B.C., and amongst several articles of jewelry a denture, very similar to those above described, was found. Dr. Marter was unable to discover any stopped teeth, although many cases of caries and other dental diseases presented themselves. It is certain that dentistry must have been extensively practised in the early history of the world, and that gold must have been used largely; otherwise the early Greek or Roman legislators would not have mentioned the matter in the celebrated laws of the twelve tables. Law 5th, de Jure Sacrorum, is as follows: "Quoi auro dentes vincti sicut in cum ollo sepelire, se frande esto."

Trinitrine.—This term has been adopted on the Continent in prescribing nitro-glycerine, that nervous patients may not be alarmed by reading the latter word.

Lobelia Inflata: new Alkaloid.—Herr v. Rosen, of the University of Dorpat, finds two alkaloids in the lobelia inflata, one a liquid, lobeline, the other a crystalline solid. The latter was found to resemble apomorphia in its emetic characters.

Arsenic in Skin Diseases.—The Editor of the *Journal of Cutaneous and Venereal Diseases* is desirous of ascertaining to what extent arsenic is used by American physicians in the treatment of skin diseases, and also the results of their experience as to its therapeutical value.

Information upon the following points is requested of every physician who reads this:

Are you in the habit of employing arsenic, *generally*, in the treatment of skin diseases?

In what diseases of the skin have you found arsenci of superior value to other remedies?

What ill effects, if any, have you observed from its use?

What preparation of the drug do you prefer, and in what doses do you employ it?

Address, Editor of *Journal of Cutaneous and Venereal Diseases*, 66 West Fortieth Street, New York.

The British Medical Association will hold its fifty-fourth annual meeting at Brighton next week, under the presidency of Dr. Withers Moore, of Brighton. The Address in Medicine will be delivered by Dr. John S. Billings, U. S. A., and, by special arrangement, will appear in our columns of next week.

The Cholera in Japan.—Since the first appearance of the cholera in Japan this year, and up to June 20th, there have been 10,276 cases of the disease, 7803 of which have been fatal. The average death-rate per 100 has been 75.93. The total number of cholera cases which occurred throughout the country, from August 23d to November 30th, last year, was 11,927, of which 7152 proved fatal, the death-rate being 59.96.

Fancy-bred Rabies.—An English writer, Crawford, is authority for the statement that an American named Stephens, to test his theory that hydrophobia is fancy-bred in man, never loses a chance of getting bitten by a mad dog. He has been wounded by canine teeth forty-seven times, and a German named Fischer, who is his disciple, nineteen times. As there is certainly such a disease as simulated rabies, he advises some society for the diffusion of useful knowledge to scatter broadcast the small volume on "Le préjugé de la Rage," by Fangère Dubourg, and what was written on this subject by such lights of science as Bouley, Brechet, Tardieu, Majendie, Boudin, Vernois, Sausen, Renault, Donnat, Baron Portal, and Dupuy.

Illegal Practice of Medicine.—In Troy, New York, there would seem to be an admirable opportunity for the enforcement of the existing statutes against the illegal practice of medicine. A certain Mrs. Hoyt, of that city, some time ago obtained a diploma from an institution known as the "American Health College," of Cincinnati, claiming, it is said, to be incorporated under the laws of Ohio, which authorizes her to practise the "vitapathic system of medicine," whatever that may be. She states that she was graduated from the college after an attendance of *eight weeks* upon its course of study, and that she also has a certificate from the institution authorizing her to perform the functions of a minister of the Gospel. Acting upon the powers conferred by the latter, it is asserted that she has already officiated at two marriages; but to what extent she has inflicted the "vitapathic system of medicine" upon the community has not transpired.

NOTES AND QUERIES.

INTERNAL AND LOCAL MEDICATION IN THE TREATMENT OF HERPES ZOSTER.

During the past year and a half there have come to my notice, at various stages of the disease, a number of cases of herpes zoster, and as the following method of treatment has given very gratifying results, it occurred to me that it might be of interest to your readers. The treatment consists briefly in the administration of a blue pill (two or three grains) twice or three times during the day, and the local application of zinc ointment carbolized (two per cent.), the parts being also protected from irritation of the clothes and other external influences. In every case so treated the pain ceased and the eruption was controlled in the course of a day or two, or after the purgative effects of the drugs had disappeared, the vesicles drying up, leaving brownish crusts, the latter dropping off in the course of a few days. J. B. S.

THE HYPERÆMIA OF HOMATROPINE.

To the Editor of The Medical News,

Sir: In the issue of The Medical News of July 24, in speaking of homotropine hydrobromate, Dr Jackson says he believes the hyperæmia produced by this drug to be due to a specific influence of the drug on those vessels through which it makes its way to the general circulation, and that the same occurs after atropia. . . . To prevent the unpleasant irritation produced by homatropine, I have been using a few drops of a two or four per cent. solution of cocaine. It seems not only to prevent the conjunctival hyperæmia, but also to increase the action of the homatropine. In the hyperæmia produced by atropine, cocaine had no effect. In my experience atropine produces palpebral as well as ocular hyperæmia, and often facial erythema. When once these symptoms are produced, at any time afterward the smallest quantity of the drug is sufficient to excite another attack; with homatropine this is not the case. Very respectfully,

J. M. Ray.

Louisville, Ky., July 28, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM JULY 27 TO AUGUST 2, 1886.

Brown, Joseph B., *Colonel and Surgeon.*—Retired from active service, July 26, 1886.—*S. O. 171, A. G. O.*, July 26, 1886.

Bentley, Edwin, *Major and Surgeon.*—Ordered for duty as Post Surgeon, Fort Davis, Texas.—*S. O. 92, Department of Texas*, July 22, 1886.

Taylor, M. K., *Major and Surgeon.*—Granted leave of absence for one month, with permission to apply for one month's extension.—*S. O. 77, Department of Missouri*, July 24, 1886.

Girard, Joseph B., *Captain and Assistant Surgeon.*—Granted leave of absence for three months, with permission to go beyond seas.—*S. O. 170, A. G. O.*, July 24, 1886.

Robinson, Samuel Q., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Fort Brown, Texas.—*S. O. 92, Department of Texas*, July 22, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING JULY 31, 1886.

Long, W. H., *Surgeon.*—Granted leave of absence for fifteen days, July 30, 1886.

Sawtelle, A. W., *Surgeon.*—To proceed to Portland, Oregon, and Port Townsend, Washington Territory, as inspector, July 26, 1886.

Devan, S. C., *Passed Assistant Surgeon.*—Granted leave of absence for ten days, July 26, 1886.

Fattic, J. B., *Assistant Surgeon.*—Granted leave of absence for twenty-nine days, July 26, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 31, 1886.

Lumsden, G. P., *Passed Assistant Surgeon.*—To duty at Marine Barracks, Washington, for month of August.

Cordeiro, F. J. B., *Assistant Surgeon.*—Ordered to Receiving Ship "Minnesota."

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLIX. SATURDAY, AUGUST 14, 1886. No. 7.

ORIGINAL LECTURES.

MEDICINE IN THE UNITED STATES, AND ITS RELATIONS TO COÖPERATIVE INVESTIGATION.

The Annual Address in Medicine delivered before the British Medical Association, Wednesday, August 11, 1886.

BY JOHN S. BILLINGS, M.D., LL.D. EDIN.,
SURGEON U. S. A.

MR. PRESIDENT, AND GENTLEMEN OF THE BRITISH MEDICAL ASSOCIATION: You all know that the representative of the American medical profession first selected by your executive committee to deliver the Address in Medicine to-day, was the late Dr. Austin Flint, Sr., of New York, whose death last March is, therefore, a great and direct loss to you as well as to America. Every English physician knows Dr. Flint by reputation and through his writings; but only those few of you who were so fortunate as to know him personally, can fully appreciate the magnitude of the loss which the medical profession has sustained in his death.

This is not the time and place to attempt to pronounce a fitting eulogium upon him and his work, and I shall, therefore, only say that my deep personal sorrow for his removal is mingled with sympathy for the members of this Association, who have been thus deprived of the pleasure of hearing him state in person some of the results of his long and wide experience. The loss is not a total one, it is true, since he had, fortunately, completed his address on "The Medicine of the Future," which has been published, and has, no doubt, been read by all of you; but in this case the printed page is by no means a satisfactory substitute for the spoken word.

In accepting the request, with which I have been honored by your Council, that I should attempt to take his vacant place on this occasion, it is with a full understanding of my inability to fill it that I stand before you.

The request came at a time when I was hard pressed by official duties, and had neither leisure nor opportunity to undertake any special research; hence, to avoid violating one of my favorite Scotch maxims, viz., "That which you do not know, tell that not to any one," it was necessary to select some subject to which I had already given consideration, and which at the same time would probably be of interest to English physicians. Reflection on these restrictions soon brought the field of selection into narrow limits, almost into "a small intercept of space of one dimension," as a mathematician would say.

What is the significance of this invitation extended for the first time to a physician of another country, and that country the United States, to come to this annual gathering of the medical men of Great Britain and give the address in medicine?

Does it not mean recognition of the unity of medicine, of the utility of coöperation, of the fact that we have common interests, and that the time has come when it is desirable to hear from the outlying younger branch of the family with a view to mutual pleasure and profit in the future? So it seems to me; and I propose, therefore, to call your attention briefly to some points relating to the present condition and future prospects of medicine in the United States, and to the direction in which you may reasonably hope and expect from that country in the future the most useful coöperation in the improvement of medical science and art. I believe that these must be matters of interest to you, and that I can perhaps make clear certain peculiarities which do not seem to be as generally understood on this side of the Atlantic, as it is desirable that they should be, to insure sound judgment upon some of the results observed.

In the first place, permit me to call your attention to the fact that it is hardly possible to make any statements with regard to medicine in, or the medical profession of, the United States as a whole, which shall be definite and at the same time distinctive; that is, which will not apply almost equally well to medicine and the medical profession in other countries. This is due to the fact that there are great differences in the organization of the profession in different parts of America, so that what is true of one State would not be true of another; what is required as to fitness or qualification to practise in one place is not required in another; and the country covers so many parallels of latitude and meridians of longitude, making the conditions of life so diverse, and producing such differences in the prevailing diseases, that a man who is fairly qualified to practise in one section may be poorly fitted to treat the endemic diseases of another.

As in painting a picture, it is best to locate and define the shadows first, and deal with the lights afterward, let us begin by considering some of the things that American physicians complain about; in other words, some of their supposed grievances. One of these is that the profession is overcrowded; that there are too many doctors, both *in esse* and *in posse*, and that this is due to too low a standard of education, and to the want of legal restrictions as to the qualifications which shall give a man the right to practise. The feelings of some of our physicians on this subject are in full accord with those of the good old New England deacon who told the village scapegrace seeking admission, that "he thought the church was about full."

Now what is the number and distribution of medical men in America? Statistics gathered in 1883[1] showed that in the United States and Canada there were 90,410 persons calling themselves physicians, being in the proportion of 1 to every 600 of population. In Canada alone, there were 3487 physicians, or 1 to 1112 of population. If we take the figures of our last census, of 1880,

[1] Illinois State Board of Health Report, 1884.

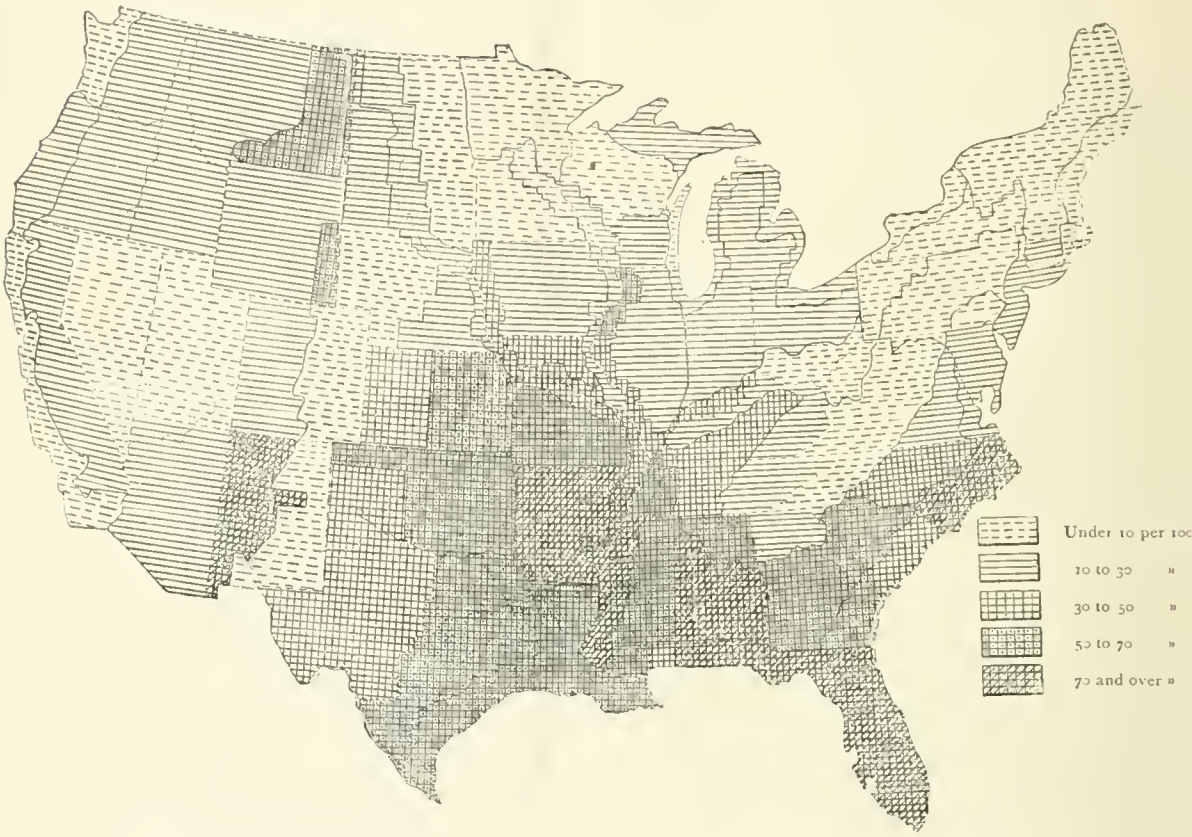
the proportion of physicians reported, is 1 to 589 of population, or 17 per 10,000. In England and Wales, by the census of 1881, the proportion of physicians is only 5 8 per 10,000, but these figures are not properly comparable with those of the United States, because they do not include unregistered persons. If the same classes were included that are counted in the United States report, I presume that the proportion would be about 9 per 10,000, or a little more than half that in the United States.

In the United States the proportion to the population of those who call themselves physicians varies greatly in different localities; thus, in Colorado there are 29.3, in Indiana 25.2, in Oregon 24.3, and in Arkansas 23.5 per 10,000; while in New Mexico there are only 6.6, in South Carolina 9.2, and in North Carolina 9.7 per 10,000.[1]

It is not easy to give satisfactory reasons for these differences; we can only say that they do not depend to any great extent upon local legislation. The proportion of physicians is generally lowest in the southern States lying east of the Mississippi, and highest in those regions where immigration has recently been active. If we compare, by localities, the proportion of physicians to the population with that of clergymen and lawyers, we find some curious differences. It seems that the lawyers in the United States number 12.7, while in England and Wales they are 6.6 per 10,000, but that on the other hand the clergymen are 14.6 in England and 12.8 in the United States per 10,000 of population. In many instances it seems that where the lawyers are most numerous the supply of clergymen is smallest. I believe that a fair proportion of physicians to population is about 1 per 1000, which is not far from the actual proportion in England, while the true proportion of practising physicians in the United States is about 1 in 750. We must admit then, that there is at all events no scarcity of physicians in the United States, and, as we have over eighty medical schools at work, besides a fair proportion of medical immigrants, there is no immediate danger of any interruption to the supply.

Let us now consider the second head of the complaint, viz., that the standard of education is too low. There is ground for this, considered with reference to some localities, but not for others. I said a moment ago that a man might be fairly qualified for practice in one part of the country and yet find himself at a loss in another. This needs a little explanation, which I can,

Chart I.



Map of the United States showing the distribution of deaths from malarial fever as compared with total deaths from known causes. Census of 1880.

[1] A map of the United States was here shown, on which the proportion of persons calling themselves physicians to the population in the several States was indicated by different shades of color.

perhaps, give most easily in connection with a map of the United States, which I here show you. This map, which was prepared for a very different purpose, indicates by different shades of color, the relative proportion of deaths reported as due to malarial disease to the total number of deaths in different parts of the country, for the census year 1879–80. You will note how comparatively light the tint is in the north and northeast, and how dark the shades become in the south and in the valley of the Mississippi, thus indicating the great differences which exist as to the prevalence and deadly effects of the malarial poison in different sections of the country. It is in some of these low bottom lands and swampy districts that we meet with cases of congestive chills and of malarial hæmaturia, cases in which the patient has been described as being "a mere appendage to a huge malarial entity, an incident of a miasmatic cataclysm." Furthermore, this strip of land bordering on the Gulf-coast is in the yellow fever zone, and has, heretofore, been repeatedly desolated by this pestilence.

As compared with the North and East, much of this malarious region is a thinly settled country, an almost purely agricultural country, and not a rich country. I need hardly tell you that the physician who has received his chief clinical instruction in the office of his preceptor in Vermont or New Hampshire, supplemented by distant glimpses of a few cases in hospital in Boston or New York, will find himself at a loss at first in dealing with the emergencies of daily practice in Arkansas and Mississippi. He will be subjected to influences which at times are dangerous to one who is not acclimated, and which tend to produce depression of spirits, want of energy, and bad health. He will not have free and constant access to scientific companionship, nor be stimulated by the influence of learned societies, and he cannot avail himself of the ordinary sources of amusement, education, and rest, such as art galleries, the drama, libraries, and museums, etc., which are found in the large cities. Moreover, the pecuniary reward which the practitioner in many of these places can reasonably hope for is comparatively small.

Taking all these things into consideration, it is clear that if a man after spending from six to eight years, and from one to two thousand pounds in acquiring such a general and professional education as it is now considered that a skilled physician should possess, then settles in such a region with the prospect of an average income of from £150 to £200 per year, it is not from pecuniary motives alone. There are such men in such places, men who are not only highly educated and skilled practitioners, but who are also original investigators and thinkers. It was within the limits of this malarial shadow that the foundation of modern gynecology was laid by Marion Sims, of abdominal surgery by McDowell, Battey, and Gross, of an important part of the physiology of the nervous system by Campbell. Nevertheless the rule holds good that malaria and science are antagonistic; the exceptions prove the rule.

Nor can the inducements for highly educated physicians to settle in thinly settled localities be made stronger by any form of penal or restrictive legislation. Any attempt to fix a standard of requirements or qualifications for practice which shall be the same for such rural districts and for the large cities and manufacturing towns, must result in the adoption of what competent judges would consider so low a standard as to be ridiculous and useless. The demands are widely different, and corresponding differences exist in the sources of supply—that is, in the medical schools.

There is a class of medical schools in the United States whose object is to give the minimum amount of instruction which will enable a man to commence the practice of medicine without much danger of making such serious and glaring blunders as will be readily detected by the public. There are other schools whose aim and object is to make fairly well trained practitioners; the general character of the instruction given in these being substantially the same as that given in your English hospital medical schools. The results of such a three years' graded course of instruction in medicine as these schools furnish, depend upon the character of the material upon which they work; that is to say, upon the general preliminary education possessed by the student at the time of his matriculation. This is evidently too often defective, and only a few schools have thus far ventured to establish any standard of preliminary examination which at all approaches in its demands that which is required in England.

The proverb that it does not pay to give a $5000 education to a $5 boy is clearly of American origin, and sums up a great deal of experience.

You have nineteen portals of entrance to the profession and have not found it easy to keep them all up to the standard. In America we have over eighty gates, a number of turnstiles, and a good deal of the ground is unenclosed common. Many of our physicians are more or less dissatisfied with this state of things and with the results thereof, and every year in some States efforts are made to secure legislation which it is supposed will protect the interests of the profession, though those who advocate such legislation are usually prudent enough to claim as their only motive a desire for the protection of the public.

Now, how does this free trade in medicine and the low standard of qualification or no standard at all required by law affect practitioners as individuals? To answer this we must divide the profession into several classes. In the first place, in all our cities, great and small, there is a large class of physicians who are as well educated and as thoroughly competent to practise their art, as can be found in the world. They have studied both at home and abroad, have had extensive clinical training, are always supplied with the latest and best medical literature and the most improved instruments, and many of them are connected with hospitals and medical schools. Among them are found the majority of our writers and teachers, and the successful men are the survivors of a struggle in which there has been keen and incessant competition. These physicians, whose positions are fairly assured, and who, as a rule, have all the practice they desire, are not usually active leaders in movements to secure medical legislation, although they passively assent to such efforts, or at least do not oppose them; and their names may sometimes be found appended to memorials urging such legislation. They are clear-headed, shrewd, "practical" men, who know that their business interests are not specially injured by quacks and ignoramuses—rather the contrary in fact, for they are called on to repair the damage done by the quack to people who have more money

than brains; and they are not inclined to risk the fate of the Mexican donkey who died of "*congojas agenas*"—that is, "of other people's troubles."

Then there is another large class of honest, hard-working practitioners who rely more on what they call experience and common sense than on book learning. Many of these have obtained assured positions of respectability and usefulness, and are comparatively indifferent to medical legislation so far as their own interests are concerned. Others, however, who are not so successful, feel the competition of the local herb doctor or of the travelling quack more keenly, and have more decided views about the importance of diplomas. Among these are the young men who have not yet acquired local fame, and who are apt to become very indignant over the doings of some charlatan in the neighborhood, or of some druggist who prescribes over his counter. These last are usually quite clear in their minds that the State ought to interfere and prevent injury to the health of the people.

I have known two unsuccessful physicians who finally abandoned practice and who gave as a reason for their failure—one that "he did not know enough," and the other that "he had not the manners and tact which would inspire confidence in his patients;" but such frank-speaking men are rare.

Thus far, as a rule, the efforts which have been made to secure legislation upon medical matters in America have come from the profession itself and have been chiefly urged and recommended by physicians. The general public, and even the educated public, has shown very little interest in the matter. It does not demand protection against ignorance, but entrusts the care of its health and the lives of those who are nearest and dearest to it to almost any one who announces himself as prepared to take charge of them. The number of those who profess to practise medicine in the United States and are not qualified to do so is undoubtedly large, though by no means so large as one might suppose after listening to the impassioned eloquence which is duly aired every year upon the subject. There are some advertising charlatans, and travelling quacks are occasionally to be met with, but they are rare.

The most rigid tests of qualification, in our profession, in the United States are those required of candidates for admission into the medical departments of the army and navy. The standard established for these is about the same as that for the corresponding corps of the English army and navy; and of the candidates who apply, from seventy to eighty per cent. are rejected.

Certainly we must admit that this percentage indicates an unsatisfactory state of things. But what evidence have we as to its results upon the health and life of the people? What shall we take as the measure of the difference of skill in physicians? The death-rate? If we compare the death-rate of the United States with those of other civilized countries, we find that it is as low as any with the exception of Sweden. Does a low death-rate mean better sanitary condition or more skill among the doctors? For the last twenty years the death-rate has been diminishing in England; the average amount of life for each person here has been increased, but I observe that the sanitarians claim this as proof of the value and importance of their efforts, and that nothing is said about its being in any way due to increase in medical skill or to improvements in medical science. Evidently this test is not a convincing one. Almost the only matter in which figures seem to demonstrate the importance of superior medical education and skill is in the statistics of deaths due to childbirth and of the results of surgical operations.

The proportion of deaths from childbirth to the number of births is decidedly greater in the rural districts than in large cities, and among the colored than among the white population. If this difference were found only in the United States statistics, it might be accounted for by the differences in the trustworthiness of the sources from which the data are derived; but we find similar differences in England, and we must admit that these are probably largely due to the fact that in cities labor cases receive more prompt and efficient professional care than they do in the country. I need hardly call your attention to the results of antiseptic surgery, or of modern abdominal surgery, as compared with those of twenty-five years ago. Here there can be no question as to the improvement. It is well to remember in this connection that whatever undue prolongation of disease or unnecessary mortality is due to want of skilled medical treatment occurs mainly among the wage earners, the farmers, mechanics, salesmen, needlewomen, etc., and not among the rich, nor yet among the very poor.

Now, seeing that really efficacious legislation with regard to medical education or to the practice of medicine must, like all efficacious legislation, be substantially in accord with public opinion, since it is impossible to continue to punish for any length of time that which public opinion does not condemn; and as the great mass of the people of the United States have not as yet had such evidence as they can understand, and which would thoroughly convince them that it is to their interest to suppress quackery, it follows that it is necessary to go slowly and to allow such evidence to accumulate.

To me it seems that the most important of the first steps to be taken in this direction is one which has already been taken in Great Britain—namely, the requirement that every death in the community shall be registered, and that in such registration satisfactory evidence shall be given as to the cause of death, sufficient at least to prove that such cause is what is known as a natural cause—that is, that it is not due to crime. When it is admitted that one of the duties of government is to provide for such registration, both in the interests of life and to secure the rights of property, it follows, necessarily, that those persons whose certificates as to the cause of death are to be accepted as satisfactory evidence that there has been no foul play, must present evidence that they are properly qualified to make such certificates. The principle is precisely the same as that which induces a government to provide for the examination of the medical men whom it employs in its army and navy.

So far as the art of medicine is concerned, the demand has much, though by no means all, to do with regulating the quantity and quality of the supply; and there are few localities in the United States where the qualifications of the medical man is not fully up to the standard which the community is able to appreciate and is willing to pay for. In the natural order of things, suffering and death are the remedies for ignorance, weakness, and vice, and the means of preventing the transmission

of these characteristics to offspring. These remedies, though effectual, are drastic, and we do our best to avoid them, but perhaps it is well that the penalties cannot be done away with altogether.

The laws regulating the practice of medicine in the United States are all State laws. If we were to judge only from what may be found in the statute books, assuming that all the laws contained therein are duly enforced, we should find that nearly two-thirds of the States have laws ostensibly regulating the practice of medicine within their borders. As a matter of fact, however, in over half the States which have laws on this subject no attempt is made to enforce them, and in almost all of them the possession of a diploma, no matter from what source derived, is all that is required.

Of the various methods which have been tried in different States to insure by law that physicians shall be properly qualified, I will call your attention to two which are of special interest.

The first is that of Alabama, the principle of which is to organize the whole medical profession of the State, and use it as the means of regulating the qualifications of practitioners and of caring for the public health. The Medical Society of the State of Alabama with its branches, the county medical societies, thus forms a part of the machinery of the Government; it appoints boards of medical examiners, selects State and county sanitary officials, supervises the registration of vital statistics, the administration of quarantine, etc., — in short, it is the State Board of Health, and the county branches are the county boards of health.

In this State the possession of a diploma does not give the right to practise, it simply enables the owner to go before the examining board. The examinations before the County Board are partly in writing, and are subject to review by the State Board, which has in some instances publicly condemned the local examinations as not sufficient.

This system has now been in operation nine years, and has gradually been consolidated and improved by educating local boards, and getting all physicians interested in it, until it is now working fairly well. Much remains to be done, and it is too soon to predict results; at present, the success of the system is largely due to the wisdom and energy of one man, who has given his whole time and labor to the work, and it remains to be seen whether the machine which he has built will work well without him.

The second system to which I will call your attention, is that of the State of Illinois, which was commenced in 1877, or about the same time as that of Alabama.

In Illinois any one who presents a diploma, or license to practise, from a legally chartered medical institution in good standing, is entitled to practise, and the State Board of Health is to decide as to what shall constitute "good standing." The Board of Health also examines all persons who do not possess satisfactory diplomas, and who nevertheless wish to practise in this State.

One of the greatest practical difficulties in the way of providing any system of State examinations in medicine in the United States, is that public opinion will not support any law which can be supposed to condemn or in any way to injure homœopathic and eclectic practitioners or their schools, and hence any proposed law relating to medicine, or to the organization of State boards of health, which does not recognize the existence of these sects will, in many States, at all events, meet with enough opposition to defeat it. In Illinois this difficulty was surmounted by the arrangement, that of the five physicians on the Board, one should be homœopathic and one eclectic. The Kansas law, passed last year, goes further in this direction, and provides that appointments must be so made that no school of medicine shall ever furnish a majority of the members of the Board. Much to the surprise of many, the Illinois plan has worked very well—there has been no quarrelling in the Board—and the homœopathic and eclectic members seem to have upheld quite as high a standard of qualification as their fellow members. The results of the work in Illinois have been very good. A large number of ignorant charlatans were forced to leave the State. The requirements of the Board as to what shall constitute a medical college in good standing have been raised, and it has thus caused improvement in the medical schools, not only of Illinois, but of other States. Moreover, the neighboring States have been stimulated to action, not only by the force of example, but because they received the men who had been driven out of Illinois, and found the accession an unpleasant one.

As in the case of Alabama, it is too soon to judge definitely of the results; and in Illinois, also, the satisfactory working of the system is largely due to one man, the Secretary and executive officer of the Board, who has given his entire time to the work. I do not, by any means, wish you to suppose, however, that I consider this as being a serious objection to this or any other plan, for in the building up of any organization, or the carrying out of any system, much must always depend upon some one man.

The relations of the United States Government to medical education and to the practice of medicine are indirect only, the regulation of these matters by law being part of the police power which, under the constitution, is reserved exclusively to the individual States. The United States employs physicians in its Indian Department, in the Pension Department, in the Marine Hospital Service, and in the medical departments of the army and navy, and it has power to regulate the practice of medicine in those territories which are not yet organized into States, and also in the District of Columbia; but thus far it has made no use of such power. The qualifications of physicians employed in the army and navy and in the Marine Hospital Service, are determined by examinations made by boards of medical officers belonging to those services. The possession of a diploma from a respectable medical college is a prerequisite for such examination, but beyond this it does not count; that is to say, the examination is the same for the holders of all diplomas, and covers all branches of medicine. But while the relations of the general government to medical education are thus indirect, they have of late years become of very considerable practical importance, and are now exerting much influence upon medical investigations and literature. This is being effected by the museums and libraries which are now being formed under the auspices of the government at Washington, and also, to some extent, by certain special investigations undertaken by the government in the interests of preventive medicine. Of these various agencies one of the most important is the library which

has been formed at Washington, under the auspices of the medical department of the army in connection with the Army Medical Museum; both of these institutions being a part of the results of the late civil war. The museum was at first formed to illustrate military medicine and surgery, giving the results, primary and secondary, of injuries inflicted by modern weapons of warfare and of the diseases of armies in the field; in which direction the collection is unrivalled in extent and completeness. Gradually its scope has been enlarged to include illustrations of anatomy, development, and all branches of pathology and therapeutics, so that it is fast becoming a museum covering the whole field of medical science. In like manner, the library, which commenced in a collection of those books relating solely or especially to military medicine and surgery, which were required in the compilation of the *Medical and Surgical History of the War*, has expanded into a great medical library, which is now one of the best practical working collections of the kind in the world. These collections, then, no longer appertain exclusively, or chiefly, to the business of one department, but belong to the whole profession of the United States as a body; and the department which has charge of them is managing them from this point of view. The influence of the library in stimulating research, and upon the quality of medical literature, is already very perceptible, and is destined to increase with advancing years. I think I may also venture to claim that the utility of these collections, and especially of the library, is by no means confined to the medical profession of the United States, for the catalogues and indexes which are being issued in connection with them, are of service to medical writers and teachers all over the world.

As regards investigations into the causes of disease, undertaken at the expense of the general government, only a beginning has as yet been made; but it is sufficient to indicate future possibilities and probabilities. The main importance of the work of the National Board of Health, which was organized in 1879 under the stimulus of the great yellow fever epidemic of the previous year, was due to investigations upon the causes of yellow fever and diphtheria, the relations of soils and of water-supply to certain diseases, etc., investigations of the same general character as those which are being prosecuted under the auspices of the Local Government Board in this country, and of the Imperial Board of Health of Germany. It is true that owing to circumstances which I cannot here explain, the work of the National Board of Health has been stopped; but there is every probability that it will be resumed, with perhaps some change of organization, at no distant day, and I need not dwell upon the vast importance to medical science of organized and systematic work in this direction. Similar investigations have been undertaken by State boards of health, and especially by the State Board of Health of Massachusetts, and the fact that governmental health departments are tending to work in this direction is significant as to future coöperation from such sources.

In this connection should be mentioned the National Museum of Hygiene, which has been formed under the direction of the medical department of the United States Navy, which is now one of the most instructive collections of the kind in the world, and has also connected with it an excellent library and a well-equipped laboratory.

Comparative and experimental pathology is also receiving attention from the Government under the direction of the Department of Agriculture, which is doing some good work in the investigation of the diseases of our domestic animals. Our investigators are, fortunately, not hampered by antivivisection laws, and there is little danger that they ever will be, for though we have our due proportion of fanatics and seekers of notoriety who wish to emulate the British Antis-, their true motives are so well understood that they have little power to do mischief.

Of medical associations in the United States there are several classes. We have a few local societies, analogous to clubs in their organization, which own property in the form of buildings, libraries, etc., are somewhat conservative in their selection of members, and are only to be found in large cities. Of these, the College of Physicians of Philadelphia is the oldest, and has the largest and best library and museum—it will celebrate the hundredth anniversary of its existence next year. In New York the Academy of Medicine, and in Boston the Medical Library Association, are of the same character, and, in general, each large city has a similar society, although as yet they have not become fully anchored and established by the acquisition of property. The second class includes local societies devoted to specialties, such as pathology, obstetrics, etc. These also are found only in large cities, and as yet are few in number. Four of them only have published transactions. Corresponding with these are national societies devoted to specialties such as gynecology, ophthalmology, surgery, pathology and clinical medicine, etc. These societies meet annually, elect their own members, exercising care in the selection, and publish valuable transactions.

Another class is composed of the county medical societies, which strive to include all regular practitioners residing in their precincts. From these are sent delegates who form the State medical societies and the American Medical Association. The mode of organization varies somewhat in the different States, but the representative principle prevails in all. Most of these societies publish transactions, and the American Medical Association now has its journal.

As to the condition of medical science and art in America, it partakes of the general progress, for the press now makes all discoveries the common property of the civilized world. The marked feature of the present epoch is the recent advance in knowledge as to the relations between microörganisms and certain diseases, and the strong stimulus which this has given to preventive medicine. Sanitation is becoming fashionable, and if we may believe some of its votaries, it is a very simple matter to prolong the average lifetime to the scriptural "three score years and ten." All that is necessary is that everything shall be clean, and every person virtuous.

Having learned to distinguish those diseases which can be prevented much more easily and certainly than they can be cured, we may turn them over to the sanitarian, who has his own battles to fight with ignorance and prejudice. If he succeeds, and so far as he succeeds, he will change, in certain respects, the work of the practitioner.

The lives which are saved from cholera and typhoid, from consumption and diphtheria, and from the acute specific diseases, will, at last, be weakened and destroyed in other ways. The work of the physician will not be lessened by preventive medicine, it will simply be required more for older persons, and for another class of diseases. As sanitarians must depend upon practitioners for much of the information which is essential for their work, it follows that if preventive medicine is to become a working power, it will bring the mass of the profession into closer relations with the State than its members have held heretofore. What these relations shall be is one of the most interesting, and, at the same time, one of the most difficult, of the many problems with which we, or our successors, must deal. I have referred to some experiments on this subject which are now being tried in America, where it is much easier to make such trials than it is an older country hampered with vested interests.

Just at present, in this, as in a number of other things, our tendency is toward centralization, both in the several States and for the whole country, and it is not improbable that we may go far on this road in the future.

I come now to the consideration of the second part of my subject, namely, the direction or manner in which we have reason to hope that medicine will be developed in the United States, and the kind of coöperation which you may reasonably expect to receive from the medical profession of that country.

A marked feature of the present day, in medicine as in other things, is the tendency to specialization in study and in practice. But this very development of specialties, of increasing minuteness in the division of labor, increases the necessity for coöperation, and in fact tends to create what we may call the specialty of coöperation. Formerly a rifle, or a watch, was made by a single workman. No two instruments were exactly alike, each piece had its own individuality and was not interchangeable, and the cost of the whole was such as to put it beyond the reach of the multitude. Now, the work on these things is greatly subdivided, one man makes only one small wheel, or spring, or pinion, and another another, each doing his work according to a uniform pattern, rapidly, perfectly, and at comparatively small cost.

But, in addition to the workmen who make the individual parts, it is now necessary to have one person specially skilled in making drawings and preparing patterns, another to assemble the completed parts, and a third, to test the whole after it has been put together. As the centrifugal force increases, the centripetal power must also increase.

In one sense medicine, as we have it to-day, is the result of coöperation, not of deliberate, centrally planned and direct coöperation, but of natural selection from results produced by many men, often working at cross purposes and, therefore, wasting much energy, but nevertheless working, though blindly, to a common end. And it is safe to predict that in the future much of the best work will be done in the same way, by individual effort inspired by the love of science, by personal ambition, etc. But the results obtained in this way come slowly, and some things that we want can hardly be obtained by individual effort, even if we were willing to wait, hence we must look to organization for help.

This is an age of machinery, of exchanges, of corporations, for all these correspond to one and the same fundamental idea. Men make machines to do what the individual cannot do, and they make them not only of brass and iron, but of men, for such an obvious source of power to the man or men who can master the combination is not likely to be overlooked. One result of such organization is seen in our encyclopedic works on medicine, whether these be called dictionaries or handbooks; another in the great medical journals; another in associations which seek to wield political influence; another in the comparatively recent attempt at collective investigation of disease. With these may be classed also the attempts of Government departments to make scientific investigations, to collect libraries and museums, to do things which require long continuity of effort on a definite plan in order to produce the best results.

And it is by the combination of all these, with the efforts of individual workers, that substantial advance and improvement are to be effected.

In this broader view of coöperation it is interesting to consider those fields of labor to which comparatively few physicians can devote themselves, because of want of time and opportunity, but whose proper working is, nevertheless, of the greatest importance to the practitioner.

One of these is experimental laboratory work, and in this direction the prospect of valuable contributions from America is now exceedingly good. Some of the wisest of our most wealthy men have shown their appreciation of the responsibilities which riches entail on their possessors by seeking new channels through which to benefit their fellow men. While the old and well-known methods of endowing hospitals and charitable institutions are not neglected, there is apparent an increasing tendency to endeavor to promote the advancement of knowledge, and especially of such knowledge as tends to the mitigation of suffering and the improvement of the race, to furnish means for the investigation of disease, to provide laboratories, and to endow medical schools and thus place them beyond the reach of the temptations and difficulties which must always exist when such schools are dependent upon the fees of students, and are, therefore, practically commercial manufacturing establishments.

As illustrations of this tendency, I may mention the bequest of £1,400,000 by Johns Hopkins to endow, in the city of Baltimore, a university and a hospital of which the medical department is to be a special feature, to be provided with the best laboratory and other facilities for original investigation as well as for teaching; the gift of Mr. Carnegie to the Bellevue Hospital Medical School of New York in the shape of a well-equipped pathological laboratory; the presentation by Mr. Vanderbilt, and members of his family, to the College of Physicians of New York, of £200,000, to provide for that school new buildings and clinics having the best means of teaching and research, and the endowment by an unknown donor, of a laboratory for the University Medical College of New York, with the sum of £20,000.

Last year, in his retiring address as President of the New York Academy of Medicine, Dr. Fordyce Barker referred to this tendency to regard wealth as a trust to be used for the benefit of humanity, and after sketching

the requirements of the Academy on a scale which would require an endowment of at least a million of dollars, predicted that such an endowment would be furnished by wealthy citizens of the city. I believe that he was right, and that his prediction will become history.

As the class of men who have wealth, leisure, and knowledge becomes greater, there comes an ever increasing demand, not only for the best medical skill, for the most expert practitioner, but also for exhaustive research in every direction which promises to furnish new means for the prevention or relief of suffering, and for warding off, as long as possible, the inevitable end; and hence there is little reason to doubt that the examples I have named will be followed by others in the near future. With such opportunities, and under such conditions and influences, the stimulus to the young and ambitious worker is strong; we have abundance of material of this kind upon which the process of natural selection can operate, and there is little reason to doubt that the result will be substantial and valuable contributions to physiology, pathology, and therapeutics.

I have already referred to some of the work which has been undertaken by the United States Government for the benefit of medicine and of the medical profession in the formation of a library, and the providing of means of assistance in bibliographical research. There is another most important means of advancing medical and sanitary science which only a Government can furnish, and in which field of work England now stands preëminent—I refer to vital statistics. In this field, the United States Government has thus far done but little, yet enough to show the great interest and value of what we have a right to hope will be done in the future by combining the work of the several States. This is one of the fields in which international coöperation is most desirable; it alone can furnish data sufficiently complete and reliable for a scientific consideration of the relations of disease to geographical and race distinctions.

Geographical pathology is a very old branch of medicine, as old, at least, as Hippocrates, whose treatise on airs, waters, and places is justly famous. Permit me to remind you of its opening clauses. "Whoever wishes to investigate medicine properly should proceed to consider the seasons of the year and what effects each of them produces, the winds, the qualities of the waters, the situation and exposure of the city, the character of the ground, and the mode of life of the inhabitants." Then, says the wise old Greek, "From these things he must proceed to investigate everything else."

There is a breadth of view in that last sentence which is particularly satisfactory. Since the days of Hippocrates there has accumulated a vast amount of literature relating to the supposed connection between the topographical peculiarities of different cities and countries, and the diseases which prevail in them, but when the books and essays which come under the heading of "Medical Topography" are examined, it will be found that the topographical part is much more complete than the medical—which last is mainly confined to the consideration of malarial diseases, and is vague and indefinite with regard to their relative prevalence.

Much the larger part of our really valuable information on this subject has been obtained within the last twenty-five years, as Prof. Hirsch points out in the preface to the recent edition of his very valuable handbook of geographical and historical pathology, and while the contributions of the United States to this branch of medical science have been already important, I hope to be able to show you that they are probably destined to be of steadily increasing importance in the future. Considered, as a body, the opportunities of the medical profession of the United States for the study of the manifold influences which can cause, modify, or prevent disease, are in some respects unequalled. As regards peculiarities of climate, soil, altitude, etc., the country is so large as to afford almost every variety of combination, so that nature may be said to be making a series of experiments, on a grand scale, upon the mass of humanity which is so rapidly increasing in the new world. Especially is this the case with regard to the problems of heredity as connected with the mysterious relations of certain forms of disease to race. America is at present the great mixing bowl into which are pouring streams of human life from origins the most diverse, from regions the most remote. Black and white, red and yellow, long skulls and short skulls, Celt, Teuton, and Slav are being brought together under similar conditions of climate, food, and occupation, thus permitting of the comparison and study of the different effects, if such exist, which result from variations in parentage under conditions of exposure to the same causes of disease.

For a little time, a generation or two at least, the different streams remain pure, then there is more or less mingling, in some cases very little, in others very intimate, but always there is an opportunity of studying the races separately, as well as of investigating the results of their various mixtures.

To illustrate the possibilities in this direction, I will call your attention to some peculiarities in the distribution of deaths from certain causes in different parts of the United States, and for this purpose I shall make use of the data from our last census, taken in 1880. We have no general and uniform system of registration of births and deaths. The larger cities, and about half a dozen States, have such a system, but for much the larger portion of the country the only means which we have for determining differences in amount or causes of mortality in different localities is through the census, which is taken once in ten years. The data thus obtained with regard to deaths are imperfect, because when these are collected, only at the end of the year, about thirty per cent. of the deaths are unrecorded; and they are inaccurate, because the reports of the causes of death are not furnished by persons competent to give reliable information with regard to them. Nevertheless, these data are the best that we have, and although for a large part of the country they do not give us the actual number of deaths from any cause or set of causes, they do furnish some interesting information with regard to the relative prevalence and importance of certain causes, and suggest questions and lines for future investigation, although they do not furnish definite and scientific answers.

Take, for instance, this map of the United States upon which, by varying shades of color, is shown the proportion of deaths reported as due to cancer, as compared with the reported deaths from all causes. Cancer, using the term in its broadest sense, is a disease which seems to be gradually increasing in frequency among

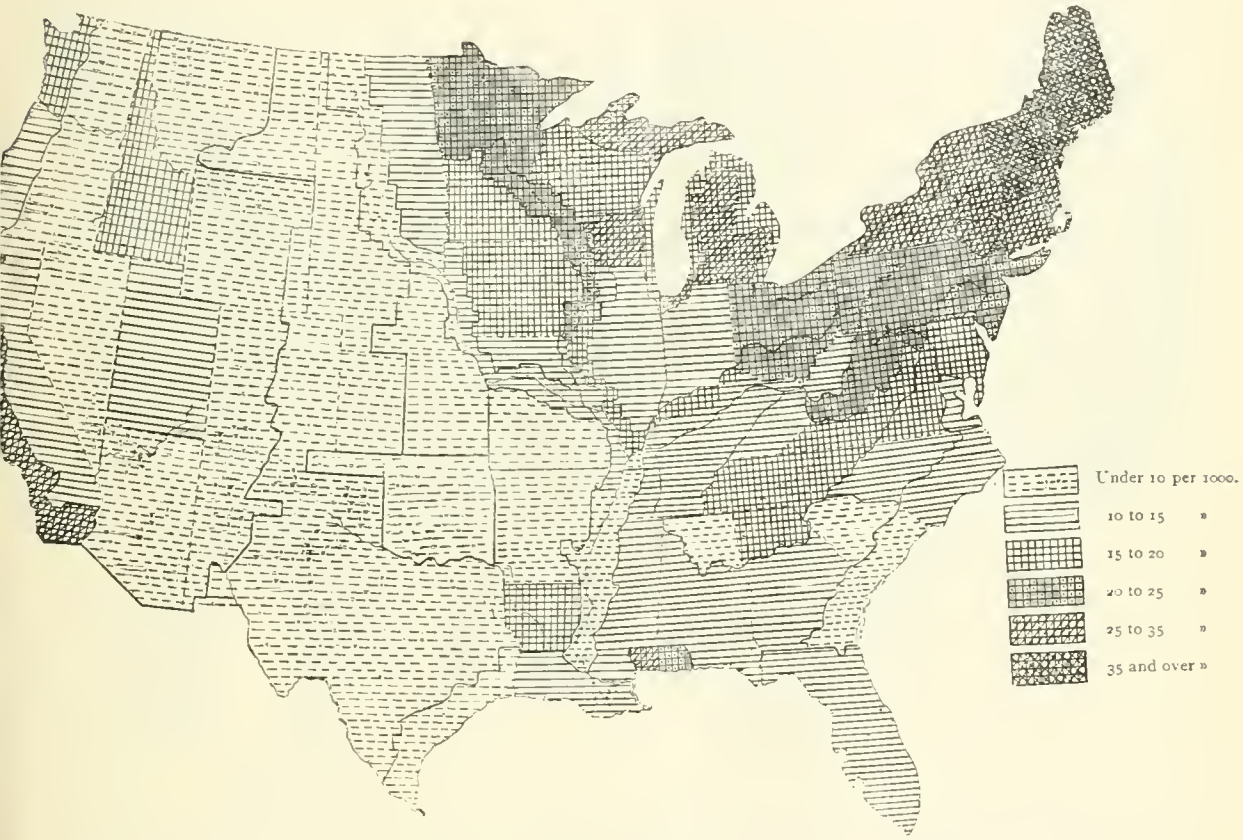
civilized nations, and, possibly, to have a tendency to increase with the advance of civilization.

In England and Wales the proportion of deaths from this cause seems to have nearly doubled within the last twenty-six years, and a similar rate of increase can be made out in certain parts of America. How far this increase is a real one, and how far it is due simply to improvement in diagnosis, is a question yet unanswered.

The mortality from cancer in the United States is proportionately greatest in the New England States, somewhat less so in New York and Pennsylvania, and it causes the least proportion of deaths in the Mississippi Valley and the South generally. The proportion of deaths from cancer in the United States is somewhat greater than it is in England; but it is not possible to make any accurate comparisons in this respect. Now why are the shades on this map so dark in the northeast and so light in the south? In the first place, cancer is a disease the mortality from which steadily increases with advanced age, as you may see from this diagram. Hence, cancer causes a higher proportion of mortality in those localities which have the greatest proportion of population living at advanced ages, and in the United States these localities are the New England States, as you will see by this map. One deduction from this which may perhaps not have occurred to all of you, is that a large proportion of deaths from cancer indicates, to a certain extent, that the locality in which it occurs is a healthy and long settled one, since it has probably a relatively large proportion of inhabitants, and especially females, of an advanced age. But another explanation of the peculiar shading of the cancer map is found in the relations of race to the tendency to death from this disease. The proportion of annual deaths from cancer per hundred thousand living population was, in round numbers, twenty-eight for the whites, and thirteen for the colored. That is to say, cancer is more than twice as prevalent among whites as it is among colored in the same localities, for these figures apply only to the South. On the other hand, cancer appears to cause a greater proportion of deaths in persons of Irish and German parentage, than it does among the rest of the white population, the indications being that between the ages of fifteen and sixty-five the Germans are especially liable to cancer; more so than the Irish, and decidedly more so than the average white population. Now when we remember that the greater part of the colored population is in the South, and the greater part of the Irish and German population is in the North, we have another reason for the differences in mortality caused by this disease in the two sections.

Again, take this map, showing the distribution of the

CHART II.



Map of the United States showing the distribution of deaths from cancer as compared with total deaths from known causes. Census of 1880.

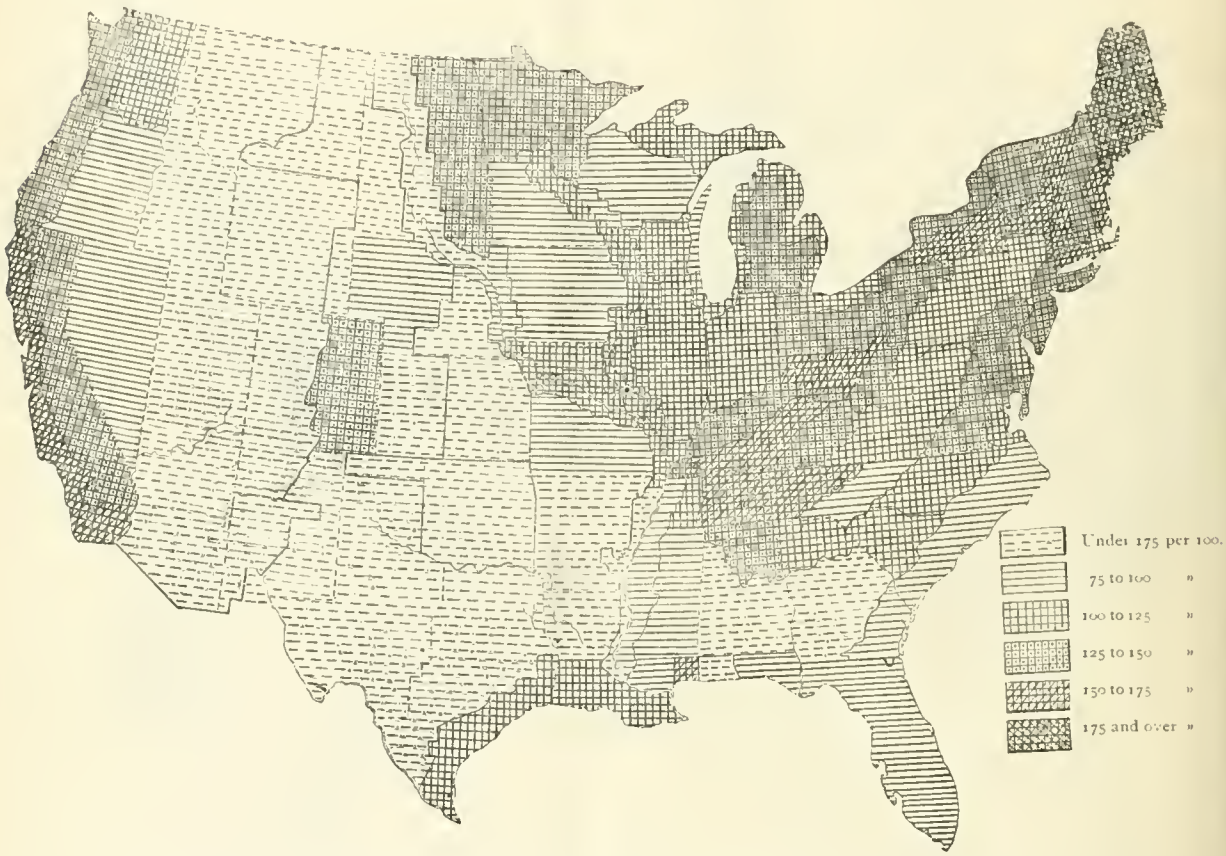
deaths from scarlet fever during the census year. You see that this also was most fatal in the North, and, here again, the influence of race comes in, because in the negro race the mortality from this disease appears to be very low. This disease has always been much rarer in the South than in the North, and the contrast was much stronger in former years than it is at present; but this cannot be explained solely, or even to any great extent, by difference of temperature, because scarlet fever has often been epidemic in the tropics, and, on the other hand, in many localities in temperate climates it is among the rarest of diseases.

again the influence of race comes into the problem, although, probably, only indirectly; that is to say, it is probable that it is the habits of a peculiar class of people which favor the propagation of the disease rather than any physical peculiarities in the structure of their bodies.

Two more illustrations of the geographical distribution of disease in the United States may be of interest in this connection. The first is that of consumption, the second, of pneumonia.

Consumption is a vague term, and, as used in the census, no doubt includes many cases which were not

Chart III.



Map of the United States showing the distribution of deaths from consumption as compared with total deaths from known causes. Census of 1880.

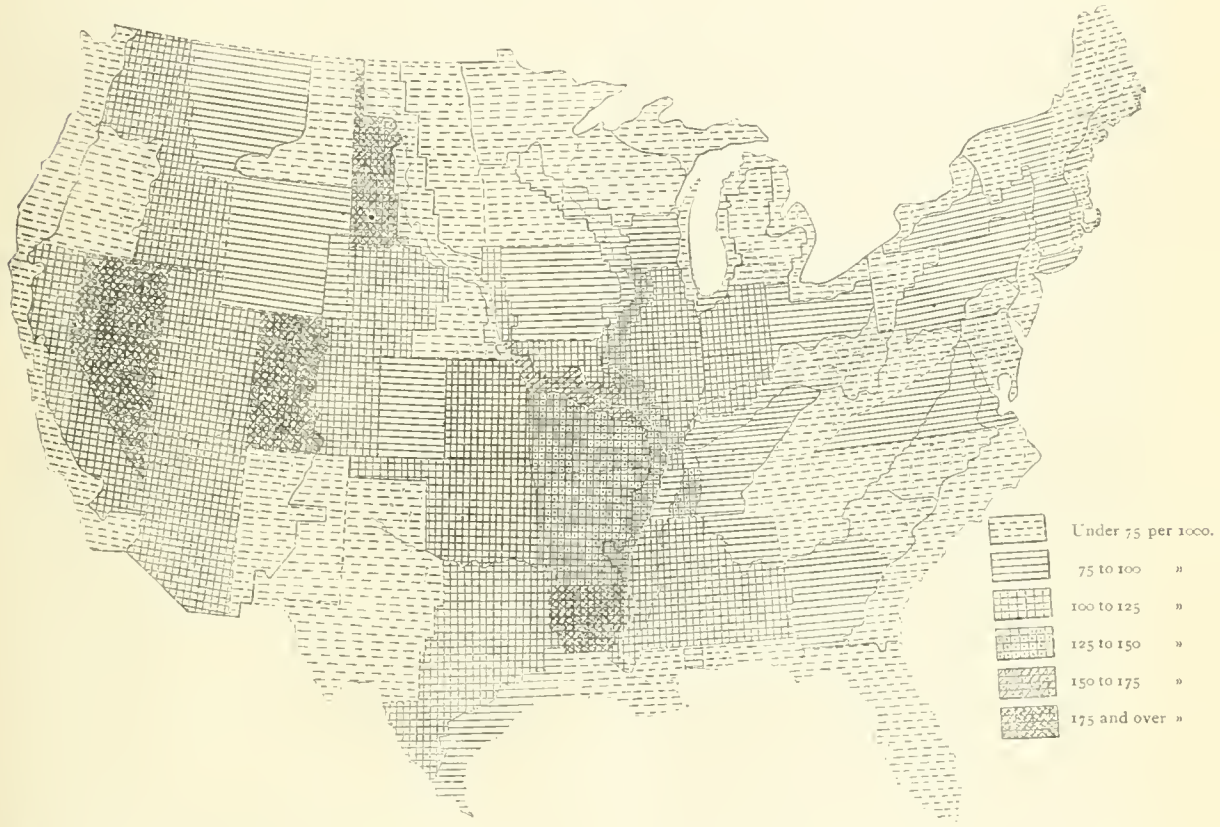
Here is another map showing the distribution of deaths reported as due to diphtheria during the year. Diphtheria is a disease which has been unusually prevalent in the northern portion of the United States for several years. During the census year it caused 2374 deaths out of every 100,000 deaths from all causes, while in England, for the year 1880, the deaths from diphtheria were 532 per 100,000 deaths from all causes; that is to say, the comparative mortality from this disease in England was less than one-fourth that of the United States for the same period. Dipththeria, again, is essentially a disease of the north, but especially of the northwest. It causes an excessive mortality in children of German parentage, sufficiently so to show that here

true tubercular phthisis. It is reported as causing twelve per cent. of all the deaths, or more than any other single cause. In England and Wales, in 1880, it caused a little over nine per cent. of all the deaths. Such wholesale ratios are, however, of little interest or value. There are very great differences in the liability to this disease in different parts of the United States, as the map makes sufficiently evident, and it is from a study of the causes of these differences in the data derived from large masses of people, combined with clinical histories and experimental laboratory work, that we have good reason to hope to obtain knowledge, not only of the causes of this disease, but of better methods of prevention and treatment than are now at our command. It

causes a greater mortality among the Irish than in other white races, and, perhaps, a greater mortality among the colored than among the white.

Next to consumption, pneumonia is reported as causing the greatest number of deaths in the United States during the census year, giving a ratio of 8.3 per cent. of all deaths, as against 4.8 per cent. in England and Wales in 1880. Here, again, the local distribution of deaths is interesting, and the contrast between the map of consumption and that of pneumonia is very striking. Here, again, we find that race peculiarity is an important factor in the problem, the proportion of deaths from

CHART IV.



Map of the United States showing the distribution of deaths from pneumonia as compared with total deaths from known causes. Census of 1880.

pneumonia among the colored being much greater than it is among the white.

I have elsewhere commented more fully than it is possible to do here upon these peculiarities of the distribution of certain causes of deaths in the United States.[1] In fact, my only object in calling your attention to the subject is to indicate the direction in which we may hope for good work hereafter, which indication is the chief, if not the only valuable result of the work already done. In the brief comments which I have made upon these maps you will have noticed the stress which I have laid upon race peculiarities. These race problems are simply problems of heredity taken in mass, and there is no need to urge upon an assemblage of medical practitioners the importance of considering family peculiarities in diagnosis, prognosis, and therapeutics. That the questions involved are difficult and complicated is true, but we are already possessed of more knowledge with regard to them than is commonly supposed.

In a lecture on "Life," delivered a few months ago, Prof. Brookes, of the Johns Hopkins University, illustrated this as follows: "If I am placed, with my eyes bandaged, before a stone lying free on the surface and am told to kick it, and if I know at the same time the size, shape, and weight of the stone and the character of the surface, I can form a pretty accurate idea as to what the result upon the stone will be. While if the object to be kicked is a dog, and I am given precisely the same data, I cannot tell what will be the effect. But if I can see the dog, I can, in many cases, predict pretty accurately. If he is a bulldog, he will do one thing; if he is a Gordon setter, he will do another." And, in like manner, the old family doctor knows that when a particular disease appears in his neighborhood, he may expect to see it produce in one family convulsions, in another collapse, and, in a third, little or no danger or inconvenience.

This kind of knowledge is, however, at present mainly confined to individuals, it has not become a part of the

[1] See report on Mortality and Vital Statistics of the United States as returned at the tenth census, 2 vols. 4to., Washington, 1885–1886.

world's knowledge; it is not defined; in other words, it is not scientific. To make it so, is the work of the future, and in this work I hope that we shall be able to help you.

I have spoken to little purpose if I have failed to show you that there is a great deal of human nature in American physicians, and that it is a kind of human nature with which you are tolerably familiar. It should be so, for we are of the same race, a race which, perhaps, as Emerson says, "sets a higher value on wealth, victory, and material superiority than other men, has less tranquillity, is less easily contented." Our ancestors were restless, fighters, freebooters, and from these ancestors we have the common inheritance of energy; of what *we* call "firmness," and our opponents unreasonable, pig-headed, stubbornness; of liking to manage our own affairs, and, at the same time, to exercise a little judicious supervision over those of our neighbors; of hatred of humbug, and lying; and, in spite of our discontent, of a firm belief that our wives and children, habits, houses, modes of business, and of treating disease are, on the whole, better than those of any other people under the sun.

Privately, and between ourselves, we grumble and declare that the country and profession are going to the dogs—nay, we must do so, or we should not be of true English blood, but there is no need for me to tell you that these are only "growing pains," and not symptoms of progressive ataxy.

While we must consider the difficulties in the way of the improvement of the science and art of medicine, difficulties due to ignorance, to indolence, to conflict of interests, and to the eternal fitness of things, the existence of such difficulties is not a matter to be bemoaned and lamented over. These obstacles are the spice of life, the incentives to action, the source of some of the greatest pleasures which it is given to man to experience.

The child, spending a happy hour with its new puzzle, is a type of the scientific investigator. The naturalist who objected to the statement that this is a miserable world which it is well to be soon done with, on the ground that there are still many species of rhizopods which he had not examined and classified, is another type. On the ethical and sociological side, the matter is summed up in Ruskin's aphorism, that "Fools were made that wise men may take care of them."

It is surely not without cause that there has been given to us this restless spirit of inquisitiveness, this desire to compass the heavens and the earth, this raging, infinite thirst for knowledge, it is the outcome of brain training and natural selection for thousands and tens of thousands of years.

We are in a period of the world's history characterized by material prosperity, by increase of populations, by tendencies to uniformity, to the making of individuals of small account. According to the Swiss philosopher, Alphonse de Candolle, this is to last a thousand years or so, after which the pendulum will swing the other way, and there will follow a long period of diminution and separation of peoples, and of decadence.

Against that decay of nations we know of but one remedy, and that is increase of knowledge and of wisdom. And this increase must be in *our* knowledge, in the world's wisdom, and not merely in that of John, or Fritz, or Claude.

As each man has special opportunities and duties, if he can only recognize them, so it is with guilds, with professions, and with nations.

I have tried to indicate to you some of these opportunities which are presenting themselves to my colleagues, your brothers, in the lands beyond the sea, and I hope that I shall not be considered rash, or vainglorious in saying that I believe they will so use those opportunities as to return compound interest for what they have received from the storehouse of our common inheritance. Force changes form and place, the stored energy of the soil of our plains and valleys has been coming here in the form of meat and grain, has appeared in muscle and brain, and in a hundred other shapes, but none has been destroyed; our loss has been your gain, and in our turn we have received full and fair exchange.

It is our part now to remember that there are not two springs in the year, there are not two periods of youth abounding in energy and desire, or of manhood's strength and self-poise, in the life of any man or of any nation, and for us, as for those who have been before us, the Kanuri proverb holds true, "*Kabu datsia, kargum bago*"—The days being finished, there is no more medicine.

ORIGINAL ARTICLES.

REPORT OF AN EPIDEMIC OF GONORRHŒA CONTRACTED FROM RECTAL COITION.

By RANDOLPH WINSLOW, M.A., M.D.,
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The following cases came under notice in 1883 and 1884, and present no features rendering them worthy of record, except such as are dependent upon their unusual mode of origin. In a certain institution near Baltimore, a large number of boys of ages from nine to twenty-one years are collected, who are, with few exceptions, closely watched, and are seldom allowed out of the sight of an officer. No females are employed as domestics except two middle-aged women as cook and laundress. There is no chance for the inmates to have connecti n with women outside, as the grounds are surrounded by a high wall, and watchmen are stationed in various places to prevent unauthorized ingress or egress. Owing to rigid surveillance, it would be equally impossible for sexual relations to have been had with the two middle-aged women aforesaid.

Notwithstanding these conditions, during 1883 and 1884 numerous cases of urethritis developed amongst the boys, the origin of which for a long time remained a mystery. The authorities were confident that the boys who were the subjects of the disease had had no opportunity to have sexual intercourse with women, and the boys would only acknowledge such causes as straining, wearing the clothes of other boys, and masturbation. As the number of cases increased, the officers began to unravel the mystery, and finally the following facts were brought to light:

For a long time sodomy had been practised to some extent in the institution, but without any especially ill results in regard to health. The younger boys were generally selected to take the part of a

female, usually for some substantial benefit, as a piece of tobacco, candy, or other delicacy, or a reciprocity of the favor.

The gonorrhœal epidemic is supposed to have originated in the following manner: A boy who was on leave of absence contracted gonorrhœa from a girl, and was the subject of the disease when he returned to his duties. Previous to his recovery he cohabited with another boy, causing an inflammation of his rectum. I subsequently examined the rectum of this boy and found it red, painful, and inclined to bleed. At first defecation had been painful, but he had recovered in that respect when examined by me. Soon after the connection of these two boys, the latter granted like favors to a friend, who had no urethral disease at that time, and in a few days he developed the usual signs of gonorrhœa. Another boy appearing at this time with urethritis, attributed it to rubbing his penis against the organ of the first mentioned boy, whilst engaged in a mock copulation, but would not acknowledge having had rectal coition.

Thus case after case occurred without assignable cause, though in a few instances the boys confessed to buggery, and attributed the disease to it. Not all the cases were accurately recorded, and in fact it is probable that a number of boys never reported for treatment at all, but the following cases are known to have been treated, and are presented for what they are worth.

Case I.—Boy, seventeen years of age, has not been outside for three months, reported at hospital August 3, 1883, with a urethral discharge, which lasted several weeks, and finally yielded to copabia internally and boracic acid injections. No cause assigned for the disease.

Case II.—Boy, reported at hospital on September 15, 1883, presenting all the signs of gonorrhœa, consisting of pain, swelling of penis, discharge, and chordee. He attributed the disease to wearing the shirt of another boy who had contracted the disease outside. This mode of origin was denied by the hospital steward, who said the whole story was a fiction.

Amongst cases without further history are the following:

Case III.—Aged nineteen; gonorrhœa.

Case IV.—Aged eighteen; gonorrhœa.

Case V.—Aged sixteen; epididymitis.

Case VI.—Aged sixteen; gonorrhœa, attributed by the boy to masturbation.

Case VII.—Aged sixteen; gonorrhœa causing phimosis, which resisted all treatment until he was circumcised.

Case VIII.—Aged sixteen; epididymitis; no assigned cause.

Case IX.—Aged fifteen; gonorrhœa, moderate in intensity, and three weeks in existence when first seen.

Amongst the cases which can be traced more clearly is the following:

Case X.—Boy, aged thirteen; impubic, entered hospital in September, 1884, with severe urethritis. He admits having had rectal coition with a comrade four days previously, and says the discharge began the day following. He has now a free discharge of bloody pus from the urethra, with other signs of severe inflammation of the canal. This boy became quite ill with considerable fever, and subsequently a suppurating swelling formed over the wrist-joint, which I considered to be pyæmic in nature, and later abscesses developed elsewhere. After a protracted illness he recovered. I examined the rectum of the boy from whom he says he contracted the disease, and found it red, painful, bleeding easily, and inflamed. I inquired of one of the boys who acknowledged to both active and passive pæderasty, whether he submitted to the approaches of his friends from any gratification which the act gave him. He denied having any pleasure in acting the part of the female, and only allowed it for reciprocal purposes.

I regret that efforts were not made to discover the gonococcus of Neisser in the discharges from both the rectum and urethra in these last cases. As some of the cases were treated by another physician, I am unable to report their histories as fully as I would like, but they are corroborative of the method of origin enunciated above.

The epidemic ceased about January, 1885, owing to the strict watch kept upon the suspected boys, and the severe corporeal punishment inflicted upon those detected in the act of sodomy, although isolated instances are still occasionally discovered.

I am induced to present the above brief account of this outbreak of urethritis on account of its rarity from an etiological point of view. Whilst many authors mention the fact that the rectum may be occasionally the seat of gonorrhœal inflammation, none with whose writings I am familiar mention any case in which the disease has been reconveyed to the urethra by rectal cohabitation. Van Buren and Keyes simply mention in a foot-note that cases of rectal gonorrhœa have been observed by Allingham and Tardieu (Van Buren and Keyes, *Genito-Urinary Diseases*, 1874, p. 53) in prostitutes who practised sodomy. Otis (*Practical Clinical Lessons on Syphilis*, etc., p. 261) mentions gonorrhœa as "occurring exceptionally in the mucous membrane of the rectum." Esmarch (in Billroth and Pithas's *System of Surgery*, Vol. III. Part II. p. 69) says:

"A very acute catarrh with profuse secretion results from transportation of the contagium of gonorrhœa to the mucous membrane of the rectum. It occurs in women most frequently from the inflowing of the secretion from the vagina; but in men through direct infection in consequence of passive pæderasty."

Kelsey (*Diseases of the Rectum and Anus*, p. 69) makes a similar statement:

"Again the disease may result, both in men and women, from the habit of passive pæderasty, and in such cases will be due either to mechanical violence or to the inoculation with gonorrhœal pus. A true gonorrhœa of the rectum, whether caused in this way or by direct inoculation in women by pus which is passing over the anus from the vagina, is very rare. The diagnosis of gonorrhœal proctitis will rest upon the amount and purulent character of the discharge, and the existence of gonorrhœa of the vagina, or the confession of intercourse with a diseased person in men."

Again, on page 167, he says:

"During the height of the process the rectum is hot, red, swollen, and granular, and there is abundant purulent discharge issuing from the anus from time to time in clots."

Agnew also mentions the possibility of rectal gonorrhœa (*Surgery*, vol. ii. p. 469) as follows: "Of the susceptibility of the rectal mucous surface, there can be but little doubt." In the *Maryland Medical Journal* for June 1, 1882, Dr. John Morris reports a case of rectal gonorrhœa in a lady, which did not arise from unnatural practices. "The symptoms were pain, spasmodic contraction, and formication."

The above references to the subject of rectal gonorrhœa are about all that are accessible to me at this time, and from them we learn that the disease has been seen by a number of medical men, notwithstanding the dictum of Mr. Henry Lee, that "it is doubtful if gonorrhœa of the mouth, nasal cavities, and anus ever occurs" (Holmes's *System of Surgery*, vol. ii., Am. ed.). That other observers have seen urethral inflammation arise from this unnatural and filthy practice I can scarcely doubt, but I am unaware of any such observations. Hence, place these cases upon record as etiological curiosities.

No. 1 Mount Royal Terrace, Baltimore,
July 13, 1886.

OBSERVATIONS ON LEAD POISONING, WITH SPECIAL REFERENCE TO THE EXAMINATION OF THE URINE.

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The cases reported in this paper were admitted to the medical wards of the Pennsylvania Hospital during the service of Professor J. M. Da Costa, 1885–86.

Case I.—F. H., æt. forty-two, admitted December, 1885; had been a house-painter for thirty-two years. He never experienced any bad effects from his business until November, 1881, when he had an attack of colic and constipation. He treated himself with Epsom salts, and recovered in three weeks. He continued well until December, 1884, when a squamous eruption appeared upon the palmar surface of the right forearm. This was followed by itching and burning sensations under the nails of the right hand. He began to lose strength in the right arm, and two weeks later became unable to extend the right hand, or fingers, and a marked tremor appeared in the arm. The left arm was then attacked with weakness and similar paralysis. He suffered from pains about the wrists and ankles. The pain originated at the ends of the flexor muscles of the forearm and radiated to the fingers. He had burning sensations on the soles of the feet and cramps in the calves. Attacks of spasmodic contraction of the flexor muscles of the forearms began to occur almost daily, and during these attacks it was with great difficulty that the fingers could be straightened. Muscular weakness extended to the legs and throughout the body. He suffered from headache, giddiness, mental wandering, and occasional delirium. His eyesight, which formerly had been very good, became much impaired. All these symptoms appeared suddenly: and they reached their maximum in extent and intensity during the first month of the attack. Indeed, the mental wandering, giddiness, and tremor had much diminished before admission, though the man had been under no treatment.

When admitted to the hospital, this man walked with a weak and unsteady gait. His hands were claw-shaped; the fingers being flexed and inclined toward the ulnar side. The joints of the fingers and the wrist-joints were prominent. The left wrist presented the appearance of subluxation. The deformity of the hands resembled that seen in rheumatoid arthritis. The extensor muscles of the forearms and all the muscles of the hands were atrophied. The thenar and hypothenar eminences were flattened: in the right hand they were obliterated. The muscular mass between the metacarpal bones of the thumb and index finger had disappeared on both hands.

There was complete paralysis of the extensor muscles of the hands and fingers, and the grasp was very feeble. There was no paralysis of supination and pronation (cf. Duchenne, *L'Electrisation Localisée*, 3d ed., pp. 671–691). The deformity and weakness were so great that he could only with difficulty feed himself, and he was unable to button his clothes.

There was great muscular weakness in the legs and throughout the body, though there was no paralysis or atrophy of any muscles with the exception of those upon the forearms and hands.

He complained of pain in the finger-joints, and at the ends of the flexor muscles radiating to the fingers. The pain was greater on the right side, and was not increased by motion or pressure. There was also pain about the ankles, and the right external malleolus was tender on pressure. There was a slight tremor of the right arm. There was no response to the patellar reflex.

There was a very diffuse lead-line upon the gums, which existed on the inner and outer aspect of the base of every tooth in the mouth. There were also black patches on the mucous membrane of the upper and lower lips opposite the left canine teeth. The tongue was flabby and marked by the teeth. The breath was fetid. The bowels were constipated, though there was no colic. The pupils were contracted and sluggish.

No murmur was heard in the heart. The first sound was indistinct; the second was distinct at the aortic and pulmonary areas. There was no anæmia. The complexion was florid, and examination of the blood showed that the red corpuscles existed in normal quantity.

The cutaneous sensibility was diminished on all parts of the hands, arms, feet, and chest. The greatest diminution of sensibility occurred on the palmar surfaces of the last phalanges of the little finger of the right hand, and of the thumb and middle finger of the left hand. On the two latter fingers sensation was completely destroyed, a needle was thrust through the skin without causing pain. Since the beginning of the attack the middle finger of the left hand had felt numb and cold.

Faradic contractility was absent in the extensor muscles of the forearms, and in the muscles of the hands. All the muscles responded to galvanic stimulation, with the exception of those which form the thenar and hypothenar eminences of the right hand. In these muscles all forms of electrical stimulation failed to cause contraction.

Though galvanic contractility was diminished in the paralyzed muscles, yet there were no apparent qualitative changes. The cathodal closing contraction was in every case the greatest. Of all the paralyzed muscles the extensor ossis metacarpi pollicis had best preserved its electro-muscular contractility (cf. Duchenne, *loc. cit.*).

For some time after admission he complained of continual frontal headache and neuralgic pains about the inner angles of the eyes. At times he was unable to see, and everything looked dim and dark before him. He also suffered from spasmodic contraction of the flexor muscles of the forearms; and during these attacks it was necessary to use considerable force to straighten the fingers. About forty ounces of urine were passed in twenty-four hours. The specific gravity was 1.021. No albumen, sugar, or casts were found.

After this man had been under treatment for five days he was sent, for examination of his eyes, to Dr. George C. Harlan, Surgeon of the Eye and Ear Department of the Pennsylvania Hospital.

The following is Dr. Harlan's report:

December 8, 1885. States that his sight had not been so good as formerly for the last year, and has grown much worse recently. No pain or inflammation of eyes at any time, or any symptom other than diminution of sight. Vision in the right eye is now $\frac{10}{LXX}$, and in the left $\frac{10}{C}$. The ophthalmoscope shows no decided change in the appearance of the fundus, but on hypermetropic refraction, weak convex glasses (+ 1.5) improve the vision to $\frac{20}{XL}$. Color vision normal. The visual field in each eye is extremely limited concentrically. At a distance of ten inches there is no vision, even for form, beyond an area two and a half inches in diameter about the point of fixation, which is central. Repeated examinations by different examiners give always the same result.

15th. There has been decided improvement in both the acuteness and the area of vision, and some in the accommodative power. There is now in the right eye V. $= \frac{20}{L}$ without a glass, and $\frac{20}{XX}$? with + 0.75; and in the left V. $= \frac{20}{L}$ improved by + 1.25 to $\frac{20}{XXX}$. The field of vision in each eye, taken at ten inches, measures twenty inches in its horizontal diameter and fifteen inches in its vertical, with + 3 D. No. 1 S. is read at eleven inches.

18th. After careful testing under homatropin the refraction is found to be in the right eye + 1.25 and in the left + 1.75, and the vision $= \frac{20}{XX}$? The visual fields are still improving, and are now but slightly contracted.

26th. Visual fields normal. As the patient's vision had been impaired for some time and he was not aware of the contraction of the fields, it is not possible to obtain any exact information as to the time of its commencement. There is very little doubt, however, that the earlier disturbance of sight was due to hypermetropia rendered manifest by the failure of accommodation, and that the contraction of the visual fields, which disappeared so rapidly, was of very recent origin.

Case II.—M. H., æt. forty-nine, admitted December, 1884, had been working for three years in a paint factory, where he handled only metallic lead. Six months after beginning work he had an attack of colic and constipation, which lasted five weeks. After this he was well until two months before admission, when he was again attacked with colic and constipation.

When admitted to the hospital he was still suffering with colic. The tongue was pale and marked by the teeth. The face and conjunctivæ were pale. Examination of the blood showed that there were but one-half the normal number of red corpuscles. There was a diffuse lead-line upon the gums on both jaws. The bowels were very constipated. There was no wrist-drop, and no paralysis or weakness of the muscles; and the electrical reactions were normal. The pupils were contracted and responded to light. The pulse was weak. At the left base of the heart there was heard a faint systolic murmur propagated toward the apex. The feet were slightly œdematous. Fifty ounces of urine were passed in twenty-four hours: acid reaction; specific gravity 1.020; no albumen, sugar, or casts were found.

These cases differed materially from each other in regard to the parts attacked by the poison. In Case I. it was the nervous system which was affected; there was no colic, and no apparent blood change. In Case II. the chief manifestations of the poison were the derangements of the intestinal tract and of the blood.

Both cases were put upon the same treatment, which consisted in the administration of twenty grains of iodide of potassium three times a day, small doses of sulphate of magnesium and aromatic sulphuric acid, and frequent warm baths. In addition, Case II. received thirty drops of the syrup of the iodide of iron three times a day; while Case I. received small doses of strychnia, and the galvanic and faradic currents were applied three times a week to the paralyzed muscles. It was found that most benefit was derived from the interrupted galvanic current. For about twelve hours after the application of this current the patient was free from pain about the wrists and fingers, and there were no spasms of the flexor muscles.

The atrophied muscles rapidly improved in strength and size under this treatment, though two months passed before any reaction to electrical stimulation was apparent in the muscles of the thumb and little finger of the right hand.

Case I. left the hospital, cured, after five months of treatment. The black patches had disappeared from the lips, and there was a scarcely perceptible line upon the gums. His eyesight was much improved, and he was troubled but little by headache. The patellar reflex was normal. Sensation had returned, to a great extent, to the surfaces where there had formerly been anæsthesia. Muscular power had so improved that he was able to return to his business of house-painting.

Case II was discharged, cured, after having been in the hospital six weeks.

Examination of the Urine for Lead.—The urine has frequently been examined for lead in cases of lead poisoning, but the results obtained have not been satisfactory. On some occasions lead has been detected; on others, it has apparently been absent.

It is probable that in many cases the failure to detect lead has been due to faulty methods of examination, and in this connection there are several points to be remembered.

It is said that sulphuretted hydrogen does not precipitate lead when it is combined with albuminous substances, nor when it occurs in the secretions, in cases of lead poisoning—at least, when iodide of potassium had not been administered (Ziemssen's *Cyclopædia of the Practice of Medicine*). If the urine is evaporated to dryness and the organic matter incinerated, there is always danger of driving off some of the volatile compounds of lead which may be present. If lead is present in solution in the urine, it may be precipitated as a sulphate, as the urine is evaporated; and this is especially likely to occur if sulphates had been administered to the patient.

Lead may also be precipitated by the alkaline phosphates in the urine as di- and tri-plumbic orthophosphates.

Sulphate of lead is soluble in solutions of ammonium acetate containing an excess of ammonium hydrate. The phosphates of lead are readily decomposed by sulphuretted hydrogen.

Reeves's test (*Australian Med. Rec.*, Dec. 14, 1861) consists in administering to the patient iodide of potassium, and then soaking in the urine for five minutes after each micturition, a piece of sulphide of potassium tied up in a white rag. When the sulphide of potassium has been dissolved, the rag is opened; and, if lead is present in the urine, it is said that a black deposit of plumbic sulphide is found on the inside of the rag. This test is of no value unless the black deposit is analyzed for lead. Sulphide of potassium cannot be obtained pure in the solid form; it always contains a considerable amount of carbon, which is itself left as a black, insoluble deposit.

The following method was employed in examining the urine of the two cases of this report:

One gallon of urine was strongly acidulated with nitric acid, and slowly evaporated. As evaporation progressed, more nitric acid was added, and, by the time the solution was evaporated to dryness, all the urea had been destroyed.

The residue was dissolved in a small quantity of distilled water, acidulated with nitric acid, and filtered. There was in every case but a very small residue upon the filter paper. This residue, after having been washed with a solution of ammonium acetate and ammonium hydrate, was added to the filtrate; and the mixture was tested for lead with sulphuretted hydrogen, sulphuric acid, electrolysis, etc. The ammonium solution was then acidulated and tested for lead in a similar manner.

Three specimens of urine were thus examined from Case I. One specimen was passed before, and two after the exhibition of the iodide of potassium. Two specimens of urine from Case II. were examined after the exhibition of the iodide.

On no occasion was lead detected.

In both cases rapid improvement took place, and the black line upon the gums perceptibly diminished in extent and intensity, showing that lead was being eliminated by some channel, though apparently not by the kidneys.

As already mentioned, the results obtained by other observers with regard to the detection of lead in the urine have been very variable.

Kletzinsky (*Wien. med. Wochenschrift*, 1857) detected lead in the urine of only two out of fourteen cases of distinct lead poisoning.

Dr. Parkes (*British and Foreign Medico-Chirurgical Review*, 1853) examined four specimens of urine from a case of lead poisoning. The first two specimens had been passed before, the last two after, the exhibition of the iodide of potassium. Lead was found only in the last two specimens. In this case, however, the last specimens were examined by a much more delicate method than the first.

Dr. Sieveking (*Med. Times and Gazette*, 1857) examined three specimens of urine from a case of lead poisoning, during the exhibition of the iodide of potassium, and found lead only in the last one.

Dr. Mitscherlich failed to find any lead in the urine of animals which he had poisoned.

Other examinations of the urine have been made with equally irregular results.

From these observations it may be concluded that failure to detect lead in the urine in cases of lead poisoning has not, in many cases, been due to any fault in the method of examination, but to the fact that lead was not being eliminated by the kidneys. Lead is eliminated by the skin, the intestinal glands, the liver, and the kidneys. During the ingestion of lead it is often eliminated continuously by the kidneys, and can be detected in the urine. The presence in the urine, however, continues only for a few days after the metal has ceased to be taken into the system, though it may be found in the tissues for several months afterward.

The removal of lead from the tissues is hastened by the iodide of potassium. It is often assumed that the kidneys furnish the main channel of elimination in this case. The results of the examinations of the urine that have been made do not, however, confirm this view. It is probable that the chief channel of elimination differs in different cases. In some cases lead is eliminated mainly by the kidneys, in others by the intestinal glands and liver. If saturnine albuminuria is the result of efforts at elimination by the kidneys, lead should be found in the urine,

most frequently, in cases where the kidneys were undergoing degeneration. In the two cases reported in this paper no albuminuria existed.

MEDICAL PROGRESS.

Treatment of Whitlow and Sprains.—Dr. John Chiene, in his contributions to practical surgery (*Edinburgh Medical Journal*, June, 1886), writes as follows on the treatment of whitlow and sprains:

In deep-seated digital inflammations over the first and second phalanges, the cause is either an inflammation of the flexor sheath, or periosteal in origin. In inflammations over the anterior aspect of the terminal phalanx, the cause is periosteal, and the worst that can happen is necrosis of the terminal phalanx.

In all cases make your incision early, central, and in the long axis of the finger. Relieve tension, and prevent spread of the inflammation from the flexor sheath on the finger to the common flexor sheath on the anterior aspect of the wrist. In periosteal cases early incisions prevent necrosis of the affected phalanx. Whitlows are infective conditions, and are due to a colony of micrococci. The periosteal whitlows are cases of acute suppurative periostitis.

The infective character of these conditions must not mislead the surgeon into supposing that careful antiseptic precautions are unnecessary. Sepsis and infection are perfectly distinct conditions. Relieve the tension, and the evil effects of the pathogenic micrococci will soon subside; prevent sepsis caused by the entrance of septic organisms from the external air, and rapid healing will be the result. In patients who are liable to whitlows, as in people who suffer from boils and carbuncles, administer corrosive sublimate internally, it is a most powerful anti-fermentative.

In *Sprains*, carefully applied elastic pressure, with wadding, combined with massage and passive movement, gives the best results.

In diagnosticating an injury, look before you touch a limb. Remember the normal relations of the styloid processes in diagnosticating injuries in the region of the wrist; the relation of the head of the radius to the external condyle, the relation of the olecranon to the internal condyle of the humerus in the elbow-joint; and let the coracoid process and its relation to the head of the humerus be the principal guiding landmark in injuries of the region of the shoulder.

Always expose the uninjured corresponding region, examine it in the first instance, and let it be your standard (having satisfied yourself that it *is* normal) in diagnosticating the injury on the opposite side.

Effect of Subcutaneous Fractures on Body Temperature.—E. Müller has recorded the rectal temperature in 36 cases of uncomplicated fractures, and found, in opposition to the observations of Maas, a rise in temperature in 35. The maximum was usually reached on the first or second evening, and was maintained for from one to thirteen days. Neither the age of the patient, the amount of extravasation, nor the extent of the fracture appeared to influence the extent of the rise in temperature. Müller has collected all the records of uncomplicated fracture (English, German, and American) at the time available to him, and finds that out of 359 cases, 308—85 per cent.—passed through with marked rise of temperature.—*Centralblatt f. Chirurgie*, June 12, 1886.

Investigations on the Action of the Micrococci of Vaccine.—Dr. L. Voigt has presented an interesting study of vaccine cultures, an abstract of which follows:

Koch and Feiler, as the result of their researches, concluded that the microörganisms which are regularly found in vaccine lymph are pathogenic but do not contain the vaccine contagium, and that when isolated and used for vaccination neither produce a pock nor grant protection.

Quist, of Helsingfors, has grown vaccine lymph in various media and successfully vaccinated children with the products.

Bareggi has stated that the microörganisms of smallpox and vaccine are identical. He has described large and small cocci, which latter are probably the carriers of the contagion. They exhibit active Brownian movements, and develop so rapidly that in three days a kilogramme of artificial lymph may be prepared from a capillary tube of human lymph. With such cultures, six out of eight vaccinations were successful.

The author has separated and cultivated in gelatine three kinds of organisms which all liquefy the medium.

1. Small cocci which, near the surface of the gelatine, form grayish-white sharply defined spherical colonies, the periphery being of a pale yellow color. Under a high power they appear to possess a proper movement, and occur in knots of two and four. These are probably the carriers of the contagion.

2. Large cocci which form pale green spherical colonies with rough and indefinite surfaces, and under a high power show only slight Brownian movement. These were not always present.

3. Small cocci in gray, yellow, dark, sharply defined colonies with a delicate cloud in the neighborhood, presenting, under a high power, groups of two to four, but possessing no spontaneous movement. In stained preparations these are indistinguishable from (1), but are ineffective for vaccination. Three out of fourteen calves were successfully vaccinated with (1).

The author offers his results as a partial contribution to the subject, which requires further investigation.—*Manchester Medical Chronicle*, June, 1886.

Condition of the Urine an Aid to Diagnosis and Prognosis in Abdominal Diseases.—M. Thiriar, of Brussels, states that the amounts of urea and of chlorides in the urine furnish valuable information in abdominal surgery. When there is difficulty in determining whether an abdominal tumor is malignant or benign, the amount of urea is a very important aid. With Rommeläere he has always found that in the case of malignant tumors the amount of urea gradually diminishes till it stands at less than twelve grammes in twenty-four hours. The urine, of course, must be measured daily, a sample of the whole examined, and this frequently repeated, as a single observation is worthless. The patient must also be free from albuminuria and tuberculosis, and account must be taken of the food. In benign tumors of uterus and ovaries, the quantity varies between twenty-one and twenty-five grammes; in malignant tumors it is

below twelve. The same holds good of cancer in the intestines.

After operations in abdominal cases there is a close relation between the amount of chlorides and suppurative or destructive inflammation. When the quantity of chlorides falls below one gramme, suppuration is imminent. In all operations involving the peritoneum, an analysis of the chlorides may indicate whether the case is likely to recover.—*Glasgow Medical Journal*, July, 1886.

Influence of Pregnancy on the Circulation.—Engström, of Helsingfors, opposes the postulate of Spiegelberg, who assumes the existence of increased cardiac exertion in pregnancy, as conditioned by the increase both in the bulk of blood and area of circulation. Engström deduces from his own experiments and from those of Lahs, that the increment of the uterine circulation in nowise obstructs the blood-flow in the abdominal aorta, nor increases the work of the left ventricle. The clinically established fact that the left heart is more active in the latter months of pregnancy, he ascribes, not to the increased blood mass, but to increased intra-abdominal pressure—not due to direct pressure on the uterus or the aorta, but to a more or less great compression of all the abdominal vessels.—*Centralblatt f. Gynäkologie*, July 17, 1886.

The Kola Nut and its Action.—Watson Smith writes as follows to the *Manchester Medical Chronicle* for June, 1886.

The kola nut (cola acuminata) is indigenous to the West African coast. Heckel and Schlagdenhauffer say the seeds are reputed to clarify and render healthy the most foul waters, and even to make tainted meat edible. A member of the Linnæan Society gave, at a meeting of that Society, an account from actual experience of the kola, and of certain effects produced by it. He stated that the foreman of his estate was habituated to excess in drinking, and that every Saturday his habit got considerably the better of him. However, he had a wife who cared for him (and herself), and she reduced a kola nut to the condition of a paste every Monday morning shortly before her husband's services were required, and administered the paste to the man. In thirty minutes his head was clear again. But it is further maintained that after such an application of the kola a drunkard cannot return to alcoholic stimulants for some days without feeling nausea. At some of the garrison towns a native sits at the roadside, and sells the nuts as the soldiers pass. By the time the men reach the barracks they are quite clear headed, and the stupefaction caused by drinking spirits is gone. On the west coast of Africa, the Mohametans and Arabs surpass the natives in point of drinking capacity, for whilst drinking they also chew kola, and so anticipate the after ill-effects otherwise experienced, and prevent them. A little supply of kola nut, I would suggest, or its paste, might prove a useful help to the professional heads of our hydropathic establishments, serving for use as a kind of antiperiodic against those attacks of alcoholic craving, sometimes leading inmates to wander forth and commit themselves to positively dangerous excesses. The kola nut contains very considerable quantities of caffeine (over two per cent.), and also some theobromine, and it forms the basis of a stimulating food (the paste) of great value.

Dr. A. Hudson, Medical Inspector of the U. S. Navy, has recently stated, in a letter to Mr. Thomas Christy, of London, to whom he had applied for an experimental supply of the kola paste, that being put into possession, by the Surgeon-General of the U. S. Navy, of a sample of the paste, he had employed it in a case of mitral disease, with granular kidney of slow progress, the average quantity of urea contained in the urine being about half the normal. With much lassitude and malaise there were intense headaches (probably uræmic) at intervals of three or four weeks, and some dyspeptic symptoms. The kola was given economically for nearly a month, with apparently decided benefit. Certainly the tone and vigor of the patient improved, and the single headache which occurred within six weeks had less than a day's duration, and was of a mild character. Synchronously there was an increase in the amount of urea excreted, as well as in the quantity of urine.

On the Therapeutic Value of Preparations of Coca in Childhood.—Professor Pott, of Halle, records some experiments with coca. He used a tincture composed of one part of coca leaves to five parts of absolute alcohol, and an extract internally, and solution of the strength of five and ten per cent. of cocaine for subcutaneous injection and external application. He found the tincture, in doses of from five to twenty drops every hour or two hours, of the greatest benefit in the various forms of enteritis, gastroenteritis, colitis, and cholera nostras, in children under two years of age. Even in very severe and desperate cases, after from fifty to one hundred drops of the tincture had been taken—*i.e.*, within about twenty-four hours—the sickness stopped, the diarrhœa was greatly lessened, and a permanent improvement set in. Part of this improvement may have been due to the alcohol, and the ordinary rules for diet and hygiene were at the same time rigidly enforced. He found no benefit from its use in diseases of the respiratory tract or of the nervous system. The extract was not fully tried, but seemed of some use in the nervous attacks of older children. The chief novelty in his use of the cocaine solution was in its application in whooping-cough. He found that painting a five per cent. solution on the back of the throat three times a-day had an immediate and strikingly beneficial effect on the paroxysms, reducing them at once in number from twenty or more during the twenty-four hours to three or four, and is of opinion that the course of the disease may be shortened by some weeks by this method of treatment. He found the same application very useful in cases of inflammation of the tonsils and pharynx, and in various forms of angina.—*Edinburgh Medical Journal*, June, 1886.

Application for Use in the Eruption of Wisdom Teeth.—Delioux de Savignac has commended the following mixture as an application to the inflamed gums over wisdom teeth in the process of eruption:

Glycerole of starch	ʒij.
Pulverized borax	gr. xv.
Pulverized saffron	gr. viij.
Tincture of myrrh	gtt. x.

With this make gentle and repeated frictions of the gums.—*Revue de Thérapeutique*, July 15, 1886.

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THE BRIGHTON MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THIS week's meeting of the British Medical Association has a special interest to the profession of this country from the fact that the Association, for the first time in its history, has gone without its own borders and, ignoring geographical boundaries, has selected a representative of the American profession to deliver before it the annual Address in Medicine. The meeting has attracted an unusual number of American visitors, several of whom have contributed papers, and it affords another proof of the breadth of science and of the community of the English-speaking peoples.

We have the pleasure of laying before our readers, in another column, an account of the meeting, received by cable from our special correspondent at Brighton.

THE ADDRESS OF DR. BILLINGS.

A FEW months ago the Council of the British Medical Association invited Dr. Billings to make the Address in Medicine before the Association this year which was to have been delivered by the late Dr. Austin Flint, and in another column we have the pleasure of laying before our readers the full text of this Address, which, in every respect, was worthy of its author and the occasion. It has not only a present influence and usefulness, but it will do good in the future. Topics were appropriately considered which Dr. Billings was specially qualified to discuss, and they were presented with the clearness and accuracy which are characteristic of all his work.

The opportunity to present the real status of the American profession was offered, and it was well used. Such presentation was needed, and will be useful. Members of the British profession will better understand than they have hitherto the reasons for the differences in professional qualifications found in a country so vast as ours, with such varieties of population and manifestations of disease, and with numerous means of entrance into the profession: "over eighty gates, a number of turnstiles, and a good deal of the ground is unenclosed common."

The means which are being used to regulate the practice of medicine, especially in Alabama and in Illinois, were presented with commendation. But a point of great practical importance, which those physicians who are asking for legislation sometimes overlook, and which was presented by Dr. Billings, is that "all efficacious legislation must be substantially in accord with public opinion, since it is impossible to continue to punish for any length of time that which public opinion does not condemn; and as the great mass of the people of the United States have not as yet had such evidence as they can understand, and which would thoroughly convince them that it is to their interest to suppress quackery, it follows that it is necessary to go slowly and to allow such evidence to accumulate."

Very great improvement is undoubtedly being made in medical education, as Dr. Billings has so well shown, in those schools requiring preliminary examination and attendance upon lectures for three years. But, independently of this indication of advance, there are certain aspects of this question which medical teachers of a score or more of years gladly recognize. One is the improved qualifications of medical students. The number of those who enter upon the study of medicine after receiving a liberal education increases from year to year. Moreover, in many of those medical schools which do not require a three years' attendance upon lectures and a graded course, the number of students who voluntarily pursue such a course increases from year to year. It is only a question of time as to the adoption by all reputable schools of compulsory attendance upon a three years' graded course as one of the essential requisites for graduation.

One of the most encouraging facts in regard to the development of American medicine, Dr. Billings has presented in the generous gifts by wealthy persons, either for the establishment and endowment of a great hospital and school, as the Johns Hopkins, or for the endowment of special departments, as has recently been done for Bellevue, the College of Physicians and Surgeons, and the University of the City of New York. Such examples as have been set by Mr. Carnegie, the Vanderbilts, and the unknown founder of the Loomis Laboratory, will surely be imitated, and other of the great medical schools of the country will receive generous help.

The work of the United States government in founding a great medical library, the most valuable medical library for reference in the world, is briefly considered. It should never be forgotten that for this library, so vast, so useful, and so wisely selected, the American profession is under obligations chiefly to the zealous, wise, and faithful work of Dr. Billings.

THE TREATMENT OF SYPHILIS.

Fortunately for humanity the ravages of syphilis seem to be lessening. This is partly due to improved social conditions, and to greater vigilance on the part of those who have the supervision of soldiers, sailors, and the ignorant and degraded classes, who are the most fit subjects for destructive morbid processes. It is also partly due to better methods of treatment than were formerly in vogue. Fifty years ago the main thought in the treatment of syphilis seems to have been to meet a dangerous enemy in the most heroic way; and a careful study of the early writings on venereal diseases must leave the candid reader with the impression that much of the damage which was attributed to the syphilis ought to have been ascribed to its treatment. With the advent of men who did not think it beneath them to devote their lives to the study of venereal diseases alone, a better state of knowledge began to prevail. Before this, the patient was subjected to a conventional treatment, and if it did not fit him so much the worse for him. Now, the treatment is made to fit the patient, and under the influence of methods in which mercury took no part, it was found that syphilis might end in a cure, even if no medication was used. In this way it has come about that experienced syphilographers no longer teach the old doctrine of the incurability and ineradicability of syphilis, but can offer to their patients a good hope that they may be cured, and that they may beget offspring which shall be without their parents' taint.

The change from the older methods of treatment of syphilis has been gradual and progressive, and to-day it is as simple and sensible as formerly it was complicated and senseless. It has recently been the subject of discussion before the German Congress of Physicians. The sum of the views there expressed may be briefly stated as follows:

The treatment of syphilis should be begun as soon as the diagnosis is established. The best remedy is mercury administered by inunction. After the disappearance of specific symptoms the treatment may be discontinued, to be renewed only upon their reappearance; or, according to some authorities, it must be continued even in the absence of symptoms for a period of from two to four years. In this way syphilis can be cured.

In addition to these general assertions, there are a number of interesting details in regard to the treatment of syphilis which can be gathered from the discussion referred to. Excision of the initial lesion is regarded by a few syphilographers as capable of preventing general infection. Others regard the initial lesion as a sign of general infection. The former position is hard to establish, as it is open to two objections: First, that it is impossible for the diagnosis of the initial lesion to be certain until later manifestations appear; and, second, that it is impossible to be sure that the disease may not manifest itself long after the usual period of observation. This part of the treatment of syphilis cannot, therefore, be considered as yet accepted. Again, as to the proper time to begin constitutional treatment. Kaposi agrees with Hebra, Sigmund, and Zeissl that energetic treatment is harmful before secondary manifestations appear. Neisser believes in excision, and in beginning constitutional treatment as soon as the diagnosis is established, expecting this to diminish the intensity of the disease, but not to cut it short. He also shares the opinion of Fournier that the treatment should be continued for three or four years intermittently, using, alternately, large and moderate doses, in preference to uninterrupted small doses, of mercury. As to methods of administration, he sensibly says these must be adapted to the patient, and no one method applied to all indiscriminately. In the first outbreak, in case of relapse, or in anticipation of marriage or gestation, an energetic method is to be adopted; in the intervals, mild doses of mercury and iodide of potassium are to be used.

Von Ziemssen, of Munich, has found the hypodermatic method most convenient in hospital practice, but prefers inunction in private practice. Schuster, of Aix-la-Chapelle, declares that after an inunction course lasting from thirty to forty-five days, mercury continues to be excreted in the urine and feces for from six to eight months, and finds in this and in the fact that relapses are apt to occur at about this period, an argument for the renewal of the treatment. Ziemssen, of Wiesbaden, would continue the inunction course for months, and then discontinue it, considering the disease as cured until a relapse occurred. Leube has had thoroughly good results, during thirteen years of hospital practice, from adopting the plan of early constitutional treatment. Edlefsen, of Kiel, agrees with Leube as to the time to begin treatment, and considers inunction as the best method. He is afraid of large doses of the iodide of potassium, not as affecting the stomach, but as affecting the mucous membrane of the air passages. Bäumler advises the commencement of treatment as soon as the diagnosis is established. Doutrelepont is opposed to preventive constitutional treatment, and adopts the method of hypodermatic injections of sublimate solutions, as recommended by Lewin. Schumacher calls attention to the fact

that adopting the plan of long-continued intermittent treatment may prevent one's recognizing early cures of syphilis, and urges the importance of acting energetically in the presence of absolute lesions, and of withholding treatment in their absence. He advises a single repetition of the treatment after the lapse of a year, however, and another on the eve of marriage. Finally, Kaposi sums up the result of the discussion, which we have epitomized, as follows: 1. By general agreement the inunction method is the best in the treatment of syphilis. 2. There is no reason for inaction in the presence of syphilis; there are always means of successfully combating it.

If to these views we add our own, we shall only illustrate the fact that all syphilographers essentially agree with Kaposi. In regard to certain details, there is not perfect accord. It would, probably, be well to give due weight to the opinions of Schumacher, which we have cited, and to let our patients have a chance to show whether or not they were cured by the first treatment; for there can be no doubt that a large number can be so cured. The only objection to this plan is that late manifestations may declare themselves. But there is no good evidence that these are more apt to follow what seem to be early cures than those in which the treatment has been protracted. And it is certain that nothing can protect a patient against the diagnostic skill which attributes all sorts of obscure disorders to syphilis, whenever a previous venereal disease is confessed, and holds the relation to be all the more clear when such a disease is denied.

FECAL AMMONIA IN HEALTH AND DISEASE.

As a contribution to Treitz's theory of "ammoniæmia," which assumed the absorption from the intestine of ammonium carbonate, produced from the decomposition of urea, W. Brauneck has presented in the second volume of *Contributions from the Medical Clinic of Würzburg*, a very interesting series of observations. Tests were made of the feces of twenty-nine persons, including nephritics, cholera and typhoid patients, and healthy individuals. Omitting the details of the improved methods of analysis pursued, Brauneck's results may be summarized as follows: Under normal conditions the feces contain but little ammonia—about 0.15 per cent., while in typhus and cholera nostras its average amount in the dried mass is respectively 0.77 and 0.63 per cent. The dejecta of nephritics occupy a middle place in this regard, with a mean of 0.34 per cent. of fecal ammonia. It is a point of much interest, as demonstrating the fact that ammonium salts are absorbed in these cases, that the contents of the stomach and small intestine in these cases were found to contain more ammonia than did the contents of the large intestine.

THE MEETING OF THE BRITISH MEDICAL ASSOCIATION.

(*By Cable from our Special Correspondent.*)

Brighton, England, August 12, 1886.

The fifty-fourth annual meeting of the British Medical Association was opened in this city yesterday at three o'clock, in the magnificent Royal Pavilion, which was a favorite residence of George IV. in the latter part of the last century. The royal stables with their immense dome were years ago converted into a ballroom, and here the general sessions of the Association are held; the spacious apartments of the Pavilion itself being used for the Sectional meetings.

Over twelve hundred members participate in the proceedings, and a goodly contingent from America, twenty-five in number, is present. The weather is delightful, and the proverbial British hospitality is doing its full share in promoting the success of the meeting.

In the morning the Mayor of Brighton welcomed the Association by entertaining at luncheon, in the Royal Pavilion, the Council of the Association and some of the more distinguished visitors.

On Tuesday evening the President, Dr. Withers Moore, of Brighton, delivered the Presidential Address. He vigorously attacked the higher education of women and created surprise by citing American experience as strongly in support of his views. Speaking of the disastrous physical effects of higher education on American women, he quoted an eminent American authority as saying that: "If these causes should continue for the next half century to increase in the same ratio as they have for the last fifty years, it requires no prophet to foretell that the women who are to be mothers in our republic must be drawn from transatlantic homes." Dr. Moore further stated that there was scarcely an American physician who has specially treated the diseases of women who did not corroborate these words. The address was well received.

On Wednesday a meeting of the Council was held in the morning, and at 11 o'clock the second general meeting of the Association was held, at which the Address in Medicine was delivered by Dr. John S. Billings, of the United States Army. It elicited high encomiums, and at its conclusion Director-General Sir Thomas Crawford moved a cordial vote of thanks, which Dr. Ord, of London, seconded, and it was carried with applause.

In the afternoon the Association met in Sections. These were largely attended and the scientific papers which were read were of a high order of merit, and they generally elicited interesting and instructive discussion. In the evening the President held a brilliant *conversazione* in the Dome and Royal Pavilion, at which three thousand guests were present.

To-day the Address in Surgery was delivered in general meeting by Mr. Frederick Abell Humphrey, Surgeon to the Sussex County Hospital. The Association's

Gold Medal for Distinguished Merit—the highest honor which it is in the power of the Association to bestow—was then presented to Dr. Waters for his long and devoted labors on behalf of the cause of medical reform, which have been at length crowned with a large measure of success. This is the third time that the Association, in its history of over fifty years, has conferred this distinction. The Stewart Prize was subsequently conferred on Dr. Robert Cory for his valuable investigations of the dark problem connected with the practice of vaccination against smallpox, and the Middlemore Prize was awarded jointly to Mr. Berry and Mr. Adams Frost, whose essays stand in the first rank, and were found to be of equal merit.

The 1887 meeting of the International Medical Congress is an uppermost topic in private conversation, and the large delegation present from the American Medical Association is working industriously among the profession here to create a favorable impression concerning the prospects of the Washington meeting.

The Americans here will leave Brighton with most pleasant memories of their cordial reception, and of the scientific work of this year's meeting of the British Medical Association.

SOCIETY PROCEEDINGS.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-second Annual Meeting, held at the Pequot House, New London, Conn., July 21 and 22, 1886.

(Specially reported for THE MEDICAL NEWS.)

(Continued from page 137.)

WEDNESDAY, JULY 21.—FIRST DAY.

EVENING SESSION.

DR. J. A. ANDREWS, of New York, read a paper on

THE EFFECT OF THE ELECTRIC LIGHT UPON THE EYE.

In considering the relative effect of different forms of illumination, that obtained from gas, from kerosene, and from the incandescent light were studied. The electric light gives the maximum of light with the minimum of heat. So far, the only cases of injury to the eye from the electric light have resulted from exposure in close proximity to the arc light. In most of these cases the existence of previous eye trouble was not excluded. The effect in these cases can be best explained as occurring through the sympathetic nervous system rather than as a result of mechanical or chemical influences. It is not established that exposure to bright light can produce a diffused iritis. No case of injury to the eye from the incandescent light has been reported and out of eleven hundred workers with the electric incandescent light examined by the reader, there was not one complaint. Those suffering with errors of refraction claimed that the sight was improved. The light used was from twelve to sixteen candle power, and provided a shade to protect the eyes. The incandescent light possesses advantages which are wanting in other forms of artificial light, the principal of which are its steadiness and the fact that its use does not contaminate the atmosphere.

DR. C. R. AGNEW, of New York, stated that the incandescent electric light had been introduced into the Columbia College reading-room. All who have made use of it have expressed great satisfaction with it.

DR. W. F. MITTENDORF, of New York, said that the paper confirmed the results of his observations. The popular feeling has been against the electric light as injurious, but his experience proves the contrary. The light is so perfect that it need not be approached so close to the eye, and the efforts of accommodation are less. On account of its steadiness, less work is thrown upon the iris than with the flickering light of the gas.

DR. WILLIAM S. LITTLE, of Philadelphia, then described

A METHOD OF OVERCOMING DIPLOPIA WHEN PRISMS ARE NOT FULLY EFFECTIVE.

Double vision, especially in the lower field, is a source of danger in walking. This is the case, even where prisms are worn, as the patient, by not holding the head forward, may look under the spectacle and thus see double. A case of an elderly person with modified paresis of the superior oblique was described. This had led to two severe falls. A prism of six degrees, properly placed, united the double images below the horizontal plane. Above this plane objects were single. Myopia also existed in one eye, and required the combination of a sphero-cylinder with a prism for the right eye to correct the myopia and diplopia. In order to prevent looking under the glass and seeing double in the lower field, the speaker had resorted to the following procedure: the sphero-cylinder correcting the myopia of the right eye had been ground opaque for one-sixteenth of an inch above the horizontal plane, so as to obliterate sight in the lower field of vision in this eye. There has been attached to the lower portion of the frame the wire network used in protection glasses. This is carefully adjusted to fit close to the face, the perforations in the gauze having been stopped by painting. Vision is thus cut off below and under the spectacle. In this way, vision for the affected eye is only through the upper part of the myopic correction, and the necessity for a prism is done away with. The other eye has its myopic correction, and is the one in which vision in all parts of the field is clear. The right eye is used in only the upper part of the field, where no diplopia exists. This is better than entirely closing the affected eye by a ground glass, and is found more effective than with the prism, as danger of falling by seeing double is prevented. The same method may be applied to a diplopia in any position in the visual field.

The spectacles, as made by Borsch & Rommel, were exhibited.

DR. W. F. MITTENDORF, of New York, reported

TWO CASES OF MOLLUSCUM CONTAGIOSUM

which had come under his notice in asylums for children. In the spring of 1885 a little girl, having one or two small warts on the eyelid, was admitted to one of these institutions. In a few weeks other children exhibited similar growths on the eyelids, in some cases spreading to the lips and to the nose. Within three months after the admission of the first case, twenty-seven children were more or less disfigured by this affection.

In the second institution as many as forty children were affected at one time. Some of these children were sent to board with a farmer. One of twenty thus sent out had molluscum. In a short time the affection spread to over half of the children. It also attacked the child of the farmer and his wife. In a number of cases the tumors involved other portions of the face, but they were most marked on the lids.

As soon as attention was called to the condition, engetic treatment did away with it. Excision with scissors and touching the base with nitrate of silver proved most satisfactory. Simply pressing out of matter is more painful than excision. Unless excision is employed, the disease is apt to return.

Dr. Mittendorf also described a case of

MELANOTIC SARCOMA OF THE CONJUNCTIVA AND CORNEA.

Mrs. H., aged forty-six, came under observation August 22, 1884. In April of that year a black spot appeared upon the lower part of the conjunctiva and was removed. When she came under observation two other tumors had appeared. They were about the size and shape of cucumber seeds. Two or three spots, looking as though ink had been dropped on the eyeball, were also noted. The tumors were movable and the conjunctiva surrounding them slightly congested. Otherwise the eyeball was normal and vision almost perfect. The growths did not affect the left eye, which was highly astigmatic. The patient was a strong, hearty woman, with no appearance of cachexia. There had been no injury to the eye, and the family history was good. The preaural glands and those of the neck were not enlarged. The tumors were removed, and the wound in the conjunctiva brought together with sutures. Healing took place rapidly.

Four months later she returned with two growths starting from the lower portion and the outer canthus of the same eye. There was also a small flat growth on the cornea not connected with the tumors. The tumors were again removed and the patient returned to her home.

In the spring of 1886 she again made her appearance with the eye closed. There was a small tumor the size of a cherry which had developed at the seat of the former growth. The tumor, with a portion of the conjunctiva, was removed. A preaural gland and some glands in the neck were found slightly enlarged. The general health remained good. She had, in fact, gained in weight since the previous operation.

Four or five weeks ago she returned with another growth. The eyelids could not be separated. An incision was made and the tumor removed.

Microscopical examination showed the growth to be a sarcoma with round cells. The melanotic appearance was chiefly due to hemorrhage in the parenchyma. Pigment granules were also present.

Dr. H. D. Noyes, of New York, said that in a case of melanotic sarcoma on which he operated some years ago, the disease had not returned.

Dr. H. Knapp, of New York, had seen a number of these cases on which he had operated as carefully as possible, but they have all, after a variable period, relapsed.

Dr. O. F. Wadsworth, of Boston, referred to two cases of episcleral epithelioma which did not recur after operation.

Dr. B. E. Fryer, of Kansas City, read a paper on

THE USE OF HOT WATER IN SOME OF THE CORNEAL AND CONJUNCTIVAL INFLAMMATIONS.

In this plan of treatment, the water is used at as high a temperature as can be borne. After a few hours a temperature of 140° can be borne. The water should not be of a lower temperature than this, and as much higher as the patient can stand. A method of using it is by fomentation with a napkin dipped into the hot water and not wrung out and applied to the closed eyelids. This is continued for half an hour at a time and repeated every one, two, or three hours day and night. It may also be applied by suspending a vessel above the patient and allowing the water to escape through a tube, thus keeping up a continuous action of the hot water. In some cases, the temperature may be raised almost to the boiling point. During the intervals between the applications, a cloth wrung out of hot water is allowed to remain over the eyes. In some cases of purulent ophthalmia, the hot water may be thrown into the conjunctival sac.

In purulent conjunctivitis this application cuts short the attack more quickly and safely than the use of ice-cold water. In gonorrhœal ophthalmia, it quickly lessens the swelling and diminishes the occurrence of ulceration of the cornea. If ulceration has commenced, it is less likely to progress and the amount of cicatricial tissue is lessened. In these cases, he occasionally used instillations of sublimate solution and of finely powdered iodoform. This plan of treatment is not so readily applied in ophthalmic neonatorium. In catarrhal conjunctivitis and phlyctenular ophthalmia, it is a good adjuvant. In acute and chronic keratitis it is useful. Its most marked effects are seen in corneal ulcer. The small amount of opaque tissue left is astonishing. The pain and photophobia are also diminished by the hot water.

Dr. William F. Norris, of Philadelphia, had seen good results from the use of hot water in gonorrhœal ophthalmia, although he had not used it at a temperature higher than 120° or 125°. It is a comfortable application, and several apparently unfavorable cases have got well under its use.

Dr. Samuel Theobald, of Baltimore, said that he had not used hot water in purulent troubles, but in interstitial keratitis and specific keratitis its use had been beneficial. It favors absorption of the opacity of the cornea. Constitutional treatment and the use of atropia accompanied the applications of hot water.

Dr. William F. Norris, of Philadelphia, read a paper on

ASTHENOPIA, AND THE CHANGES IN REFRACTION IN ADOLESCENT AND ADULT EYES.

He first referred to the changes occurring in the shape of the eyeball at various periods of life. It is regarded by some as not necessary to correct slight errors of refraction, but the author considered their correction as of great importance when they produce asthenopia. By removing the trouble, the congestion and softening of the eye are removed and the lengthening of its visual axis is prevented. The congestion and softening were regarded as important factors in the production of astigmatism and conical cornea.

A number of cases of diminishing hypermetropia and

of hypermetropia passing into myopia, were described. Diminishing hypermetropia and increasing myopia are simply different stages in a process essentially the same. They are both the result of softening of the eyeball and slow distention in the direction of the visual axis. Careful correction in these cases is one of the best means of preventing their further progress. The eyes should be carefully measured under the influence of a mydriatic. The enforced rest of the eye, thus obtained, is an important aid in diminishing the congestion. During the dilatation of the pupil, dark glasses should be used, even in a mild light. All cases of hypermetropia, where there is a decided difference in level between the disk and the macula, should be carefully watched.

Dr. E. Gruening, of New York, referred particularly to a class of cases in which the patient on arising has pain in the eyes with photophobia, passing off in an hour or two, and is not able to fix on any object for any length of time. There is also lachrymation. When he finds such symptoms, he almost always finds evidence of nasal disease. The nasal reflex plays an important part in our modern pathology. All the affections due to nasal irritation are increased by the recumbent position, for this favors congestion of the erectile tissue of the nose. The speaker thought it improbable that eyes which have rested all night would manifest painful sensations, and this fact tends to exclude ordinary asthenopia in these cases. He has treated these patients by removing the nasal trouble; and in a series of 200 cases, 150 have been benefited, while the remaining 50 have passed from observation.

Thursday, July 22.—Second Day.

Morning Session.

Dr. S. Theobald, of Baltimore, presented a paper on

the amblyopia of squinting eyes: is it a determining cause or a consequence of the squint?

He criticised the views of Alfred Gräfe and Schweigger, that the amblyopia exhibited by squinting eyes is a congenital defect, and argued in favor of the older view that the amblyopia is secondary to the squint, and due to the mental suppression of the visual image formed in the squinting eye. He stated, in the first place, that it is a mistake to call this variety of amblyopia "amblyopia exanopsia," as the ambloypia is not due simply to want of use of the squinting eye, but to an active cerebral process which induces a much more rapid loss of vision. Schweigger and Alfred Gräfe, who both accept the theory of acquired retinal identity, believe that squint is often due to a non-establishment after birth of retinal identity. If this were the case, as there would be, from the first, no stimulus to binocular fixation, the squint ought to develop in early infancy, whereas it is rarely met with then, but usually makes its appearance about the fourth or fifth year. They both lay stress also upon the fact that some squinting eyes retain good vision for years, while others, which have squinted but a short time, are highly amblyopic, and that this contradicts the theory that the amblyopia is produced by the squint. These observations, however, do not conflict with the suppression theory, for as the amblyopia doubtless develops during the forming stage of the squint, it is reasonable to suppose that in some cases it will have reached a high grade by the time the squint is fully established; while, on the other hand, a marked difference in the refraction of the two eyes (because then the diplopia will be less annoying) will explain the retention of vision in the squinting eye.

The most convincing argument, however, in favor of the suppression theory, is that the peculiar regional characteristics which the amblyopia exhibits, are of just such a nature as we should anticipate if this hypothesis be the correct one, but entirely inexplicable if we suppose the amblyopia to be a congenital defect.

Until more convincing evidence is adduced to sustain the congenital amblyopia theory, it was suggested that we ought to act upon the older theory, that the squint produced the loss of vision, and so give our patients the benefit of an early operation for the correction of this deformity.

(The paper will appear in full in The Medical News at an early date.)

Dr. H. D. Noyes, of New York, differed from the conclusions presented in this paper. His objections were based upon an experience and careful observation for a number of years. It has been claimed that before the development of the squint such patients have had binocular vision. There is no proof of this, and the evidence is against it. Again, he had the records of a large number of cases of monocular amblyopia, presumably of congenital origin, without lesion demonstrable by the ophthalmoscope, which have had no squint, although they may or may not have had hypermetropia. Binocular fixation after operation is not infrequent; but, according to his experience, binocular vision is obtained in only one-fifth of the cases. It is rare to find material improvement in an amblyopic eye after operation.

Dr. O. F. Wadsworth, of Boston, agreed with the last speaker. A careful examination of this subject, ten years ago, convinced him that the amblyopia of squinting eyes is not due to disuse. At that time he had thought that he was alone in this view, but on looking up the literature of the subject, he found that Schweigger had said the same thing some years before. After operation, he thought that there is no decided improvement in vision. It is sometimes said that there is, but this is largely due to the fact that the vision is not carefully measured before the operation. He had never been able to increase the vision to any extent after operation.

Dr. George C. Harlan, of Philadelphia, said that it had been his experience that vision is not materially improved by operation. He had, at times, attempted to compel the patient to use the affected eye by keeping the fixing eye under the influence of atropia for a long time. In some cases, he had succeeded in improving the vision in the amblyopic eye. He related one case, in which the vision was increased from $\frac{20}{CC}$ to $\frac{20}{L}$. Some two years later this was still retained, the axis having become straight under the use of correcting glasses.

Dr. W. F. Mittendorf, of New York, remarked that where there is a central scotoma we cannot expect any improvement from an operation, but there are certain cases in which vision is at once improved. He had thought that this was to be explained by the removal of the undue pressure exerted by the internal and external

recti muscles, which is different from that exerted by the superior and inferior recti. Taking away this pressure puts the eye in a more favorable condition, and we should expect better vision.

Dr. Samuel Theobald, of Baltimore, regretted that Dr. Noyes was absent when the early part of his paper was read, for he had taken up the objections to which reference had been made. In regard to the restoration of binocular vision, his test has been as follows: If we cover the eye which formerly squinted, we find that there is still a balance of power in the internal rectus. If the amblyopia is not of too great a degree, the patient is directed to fix his eyes on a certain object. The squinting eye is then covered, and it at once turns in. When the covering is removed it again turns out, showing that it did so to obtain an image upon a corresponding point of the retina. He considered this conclusive evidence of the restoration of binocular vision. In regard to vision, he agreed that where there is a considerable amount of amblyopia, there is no appreciable improvement after operation; but this had no bearing upon the question whether the amblyopia is congenital or due to suppression.

(*To be concluded.*)

CORRESPONDENCE.

FARADIZATION IN EXTRA-UTERINE PREGNANCY.

To the Editor of The Medical News,

Sir: Will you allow me to make a brief reply to my friend Dr. Harris concerning the points which he discusses after reading my letter to the Obstetrical Society of Philadelphia, at its meeting on May 6th, reported in The Medical News of June 12, 1886.

1. Dr. Harris says that "this fœticidal method is a valuable method of saving women when in great danger of death from rupture of the fœtal cyst and internal hemorrhage." Dr. Harris evidently does not understand the pathology of these cases, because it is perfectly impossible to recognize them before rupture has taken place. In fact, women do not draw attention to their troubles in the pelvis until trouble arises, and as all extrauterine pregancies arise in the Fallopian tube, and as they give rise to no symptoms at all until rupture has taken place, when the onset of pain, exhaustion, and other symptoms, is sudden and violent, Dr. Harris's proposal of fœticide cannot be called into use until the danger has already become far advanced, and this danger can only be met by prompt abdominal section. To look upon it, therefore, as a method of preventing rupture is absolutely absurd, and cure of the rupture is only possible when the rupture has taken place.

2. Dr. Harris here again speaks as one without practical experience in such cases when he says that "we do not propose to act upon the fœtus after it has escaped into the abdominal cavity, unless the fœtus should be very small, and be easily accessible to the pole of the battery placed in the vagina." Dr. Harris knows little about the abdomen if he thinks he can determine when a fœtus has escaped from its cavity or when it has not, even when it is a fœtus at full term. Such a kind of proposal is very like searching for a needle in a truss of hay. He will easily see the force of this objection if he will kindly look at my records, now amounting to twenty-five operations, for extrauterine pregnancy at the time of rupture. In only two have I been able to find the fœtus, although in every case I have found the placenta. Finally, it is not the fœtus which is the source of danger but the torn placental vessels, and for them his galvanic needle would be a farce.

3. "Primary laparotomy," says Dr. Harris, "so far as we know of the operations, has been fatal in fifteen out of nineteen cases." Only one case out of my twenty-five died, and that was because it happened to be my first case, and I did not understand the operation; all the other cases have got well. This is a much better result than where the fœtus dies, or is killed and suppurates; and I do not think Dr. Harris mends his case much when he says that "the entrance of fœtal débris into the bladder is not necessarily fatal, as in the cases narrated by Mr. Tait, for Parry refers to nine cases, four of which recovered." It is not necessarily fatal, clearly, but it is nearly so as may be. Fifty-five per cent. mortality is high enough for me.

4. Dr. Harris says that "Mr. Tait appears not to be aware of the fact that cases of prolonged ectopic gestation have been comparatively numerous, as witness the following partial record," and he gives archæological extracts of twenty cases. Now, it is quite clear that Dr. Harris is far more of a scholar than a surgeon. Some of the cases that he quotes I was quite familiar with, but I have neither time nor inclination to trudge through musty old volumes for useless extracts. Prolonged ectopic gestation is of itself so extremely remarkable that its successful issue is likely, I think, to attract extraordinary attention, and we get assured therefore that every case which has come under observation has been published. But it is just here that the scholar gets wrong, and the surgeon keeps right. The surgeon knows that there are hundreds and thousands of these cases in which the gestation has not gone on to a successful issue, but has ended rapidly and with disaster, and these fatal cases are not published. I am sure of the first kind there is probably one to a hundred of the other which die disastrously, and are either not recognized, or not published if recognized.

I admire very much Dr. Harris's patient investigation of statistics, but I wish he possessed a little more of the ordinary surgical acumen.

Finally, let me say about this absurd proposal of electrolysis that it has already met with well-merited ridicule. A story came to me only yesterday from Buffalo, wherein an eminent specialist, who has repeatedly stated that he has had six successful cases of the electrolytic treatment of ectopic gestation, was made to discover that his sixth case was nothing of the kind, and that it never had been a case of ectopic gestation at all, and, therefore, there is abundant reason to suspect from this story that none of the other five were other than mistakes arising out of well-intentioned but misdirected enthusiasm.

The conclusion I arrive at about this proposed electrolysis is that, previous to rupture, cases of tubal pregnancy give rise to no symptoms, and, therefore, are not caught. When rupture takes place the danger is from hemorrhage, and that can be arrested only by tying the vessels of the tube and removing it. To try to stop this hemorrhage with galvanopuncture will be just as effectual as bathing the patient with tar water. When

the rupture takes place into the broad ligament (the only cases which go on to full term) we have no right to murder the child, seeing that both mother and child have been and can be saved by abdominal section.

I am, etc.,

Lawson Tait.

Birmingham, Eng., July 25, 1886.

NEWS ITEMS.

Lunacy in England.—The report of the Commissioners of Lunacy for 1885 shows that there are now 80,156 lunatics in Great Britain and Ireland, being a ratio to the population of 1 to 349. In the last year the number of lunatics has relatively decreased.

Dr. Breisky has succeeded Professor Späth, of Vienna, who has retired from the chair of obstetrics.

A Public Disinfection Institute has been opened in Berlin under governmental direction. There are chambers capable of completely disinfecting the clothes of two hundred families daily. All conceivable apparatus for thorough disinfection is provided.

Dr. R. P. Howard, having resigned the position of Vice-President of the International Medical Congress to be held in Washington next year, Dr. J. A. Grant, of Ottawa, has been appointed to the same office by the Executive Committee.

Surgeon General of the Army.—On August 6th, the President retired Surgeon-General Murray on age, and designated Chief Medical Purveyor J. H. Baxter, as Acting Surgeon-General.

Ether-tight Corks.—Corks may be rendered perfectly ether-tight by coating them with a solution prepared from four parts of gelatine, fifty-two parts of boiling water, and one part of ammonium bichromate (added to the filtered gelatine solution), and then exposing them for a few days to sunlight.

Leprosy.—Dr. George L. Fitch has for five years been in charge of the lepers in the Sandwich Islands. He gives it as his opinion, based on careful study and attempts to inoculate the virus into healthy persons, that leprosy is not a contagious disease.

Dr. William L. Dudley, late of Miami Medical College, Cincinnati, has accepted the Chair of Chemistry in Vanderbilt University, Nashville, Tenn.

Butter and its Substitutes.—Mr. J. E. Long, in a recent paper on the microscopic examination of butter, arrives at the conclusions that, "taking all things into consideration, we have no absolutely certain method of distinguishing between butter and some of its substitutes, and that of all methods proposed, the microscopic are perhaps the least reliable." These conclusions are similar to the ones reached by Prof. H. A. Webster, but are directly opposed to those of Dr. Taylor.

Cold and Putrefaction.—Recent researches by Messrs. Coleman and McKendrick, of England, on the effects of extreme cold on certain microbes, especially those concerned in putrefactive changes, show that the organisms are killed by exposure to a temperature of from 80° to 120° F. below zero, though their germs are unaffected, and speedily develop after an increase of temperature.

A Sanitary Convention at Big Rapids, Mich., under the auspices of the State Board of Health, will be held on Thursday and Friday, November 18 and 19, 1886.

International Professional Courtesies.—At the last meeting of the Sei-I-Kwai a vote of thanks was passed to Dr. H. C. Wood, of Philadelphia for the donation of 105 volumes of valuable medical works to the Tokyo Medical Library; a vote of thanks was also passed to Dr. Robert T. Wilson, of Baltimore, for the donation of nearly two hundred volumes, including a complete set of *Ziemssen's Cyclopædia*, to the Library.

The Case of Dr. Watson.—In a suit brought by the Society for the Prevention of Cruelty to Animals, of Jersey City, against Dr. Beriah A. Watson, a surgeon of eminence of that place, to recover damages for alleged cruelty to dogs in experimental surgery, Justice Lane gave judgment, July 20th, against Dr. Watson, and an appeal is to be taken to the Court of Common Pleas.

Mrs. Leland Stanford, wife of the millionaire Senator from California, has purchased a piece of land on Washington Avenue, Albany, adjoining the site of the old Lathrop mansion, and it is stated that on the whole property she will erect a handsome and well-appointed hospital for old men and women, as a memorial of her parents.

Organization of India Rubber.—M. Professor Van Lair, of Liège, announces to the Académie de Médecine the curious fact that a tube of caoutchouc placed between the two ends of a cut nerve becomes vascularized, the nerve-fibres prolong themselves into it, and finally the two ends of the nerve unite, the caoutchouc disappearing.

Culture of Vaccine in Mushroom Jelly.—Experiments have recently been made by the Finnish Medical Society in the cultivation of artificial lymph in sterilized mushroom jelly. The artificial lymph has also been dried and used for vaccination. A child was exhibited at one of the meetings who had been vaccinated by the artificial lymph in the arm. There were nine vesicles in three rows. They were all well developed, and did not present any dissimilarity, although two rows had been produced with lymph taken from different parts of the culture glass, and the third row with dried lymph from the same glass. Former experiments had not been so successful, owing to the resistance of the lymph to the effects of drying. The cultivation of the lymph has now been brought to a more satisfactory point.

How Far Can One See?—A discussion is going on in Europe concerning the distance at which large objects on the earth's surface may be visible. Emil Metzger mentions that he once saw, with some difficulty, Keizerspickt, in Sumatra, when distant 110 English miles; and he also made out Gug Merapi, in Java, when 180 miles away. From the Piz Muraun, near Dissentis, E. Hill has seen Mont Blanc, the intervening

space measuring about 110 miles. J. Starkie Gardner states that Mont Blanc is visible from the Piz Langard, though distant about three degrees. In Greenland, Mr. Whymper beheld a mountain from which he was separated by 150 miles; and from Marseilles, Zuch saw Mount Canigon at a distance of 158 miles. The whole range of the Swiss Alps has been looked upon by J. Hippisley while 200 miles away; while Sir W. Jones has affirmed that the Himalayas have appeared to view from the distance of 224 miles.

The Consumption of Tea.—The popular idea that the people of Great Britain consume more tea on an average per head of population than any other country in the world, is now shown to be erroneous. The Australian colonies and New Zealand (according to one of the Indian journals) drink far more tea per head of population than the British Islands. The Australians come first, with 7.66 pounds per head; the New Zealanders next, with 7.23 pounds per head; while the people of Great Britain, though appearing third in the list, consume only 4.90 pounds each. Newfoundland and Canada come next; while in the United States the consumption is only 1.30 pound per head; and in Russia, which is always regarded as a great tea-drinking country, the consumption is only 0.61 pound per head. Belgium, Sweden, Austria-Hungary, and Spain consume less than the other European nations; but there is not one nation on the Continent, with the exception of Holland, in which the annual consumption exceeds 1 pound per head. But in certain parts of the countries named, tea-drinking is much more common than in others. In certain Russian districts, especially, tea is drunk constantly and copiously; and it is this fact which has given rise to the notion that Russia is the most bibulous of all tea-drinking countries.

The Water-supply of European Capitals.—Rome heads the list, with her 204,000,000 litres of pure water every twenty-four hours. Her population being 345,036, every inhabitant can dispose of 591 litres per diem. London comes next, for every one of whose 4,085,080 inhabitants there are 300 litres daily. Paris takes the third place, her population amounting to 2,240,124, and each inhabitant having for alimentary uses 58 litres per diem, and for secondary purposes 169—a total of 227 litres. Berlin has 1,302,283 inhabitants, for each of whom there are 140 litres daily; Vienna 770,172 inhabitants, with 100 litres each per day; Naples 463,172, with 200 litres; and Turin 278,598, with 98 litres a head every twenty-four hours. A litre is a little more than 1¾ pint.

The American Otological Society and the Proposed Congress of Physicians and Surgeons.—At the annual meeting of the American Otological Society, held at New London, Conn., July 20, 1886, the following resolutions were adopted:

Resolved, That a Committee of *five* be appointed by this Society, which Committee shall be authorized to confer with members from other Medical Associations with regard to the organization of a convention or congress of such associations, said Committee to report at the next meeting of this Society.

Resolved, That it is the sense of this Society that nothing in this resolution shall be construed as implying the approval by this Society of any plan which shall involve the abandonment of its *independent* annual meetings at such time and place as it shall, from year to year, determine in accordance with its By-Laws.

Equine Relapsing Fever.—A very interesting report has been compiled by Veterinary Surgeon J. H. Steel, A.V.D., regarding a very fatal disease which broke out among transport mules in British Burmah toward the close of the years 1883 and 1884. The disease prevailed in the stations of Rangoon and Tounghoo, and carried off some 182 mules, representing a money loss of some 30,000 rupees. The fatalities at Tounghoo amounted to 50 per cent. of the total strength of the mules of the two infantry regiments, and at Rangoon the British Infantry Regiment lost one-quarter of its mules. These facts indicate the great importance of the disease as affecting the means of transport in war. Mr. Steel was specially deputed to investigate and treat the disease, and the report which he has prepared indicates great industry and acumen in collecting facts, and throws a flood of light on the nature and cause of the disease. Previous to Mr. Steel's inquiry, no definite conclusion had been arrived at on these points, and the fatalities were attributed to all sorts of conditions and causes. Mr. Steel set to work with thermometer and microscope, and showed that the disease was a true relapsing fever, probably resembling closely, although not absolutely identical with, the relapsing fever of man. Experiments proved the communicability of the disease by ingestion and inoculation to the dog, horse, mule, and monkey, and examination of the blood by the microscope revealed the existence of a parasite of the nature of a spirillum, very similar to the form found in the relapsing fever of man, and, like it, alternately appearing and disappearing during the relapses and intervals of the fever.

Obituary Record.—Dr. Frank Hastings Hamilton died at his home in New York City on Wednesday morning last. His illness dates from December, 1883, when he was attacked with pulmonary hemorrhage, due to fibroid phthisis. Malnutrition combined with the pulmonary trouble gradually undermined his vitality and for the last two weeks he was confined to his bed.

Dr. Hamilton was born on September 10, 1813, in the old village of Wilmington, Vt., and after an academic education was admitted to the sophomore class Union College, and was graduated in 1830. Shortly after taking his degree at Union he began studying medicine with Dr. John G. Morgan, of Auburn. During the winter of 1831–32 he attended a course of lectures at the College of Physicians and Surgeons of the Western District of the State of New York at Fairfield, Herkimer County, and in 1883 received a license to practise medicine and surgery from the Cayuga County Medical Society. After practising two years in Auburn he took the degree of M.D. at the University of Pennsylvania, and in the same year began a course of lectures on anatomy and surgery in his office in Auburn.

In 1839 Dr. Hamilton was chosen to fill a vacancy in the professorship of surgery at the college in Fairfield, and in August of the succeeding year was made professor of surgery in the Geneva Medical College. In 1844

he made a tour of Europe extending over a period of seven months, and published accounts of his travels in *The Buffalo Medical Journal* of that year. Upon his return to this country he made his home in Buffalo and was appointed surgeon to the Buffalo Hospital of the Sisters of Charity.

Upon the organization of the Buffalo Medical College, in 1846, he was made professor of surgery and held this position until November 28, 1858, when he accepted the professorship of the principles and practice of surgery in the Long Island College Hospital and removed to Brooklyn. In April, 1861, he became professor of military surgery, fractures, and dislocations, and professor of clinical surgery in the Bellevue Hospital Medical College. He remained in these positions until May, 1868, when, upon the resignation of Professor James R. Woods, he was made professor of the principles and practice of surgery, with operations, and continued in this capacity until March 15, 1875, when he resigned.

His first publication was a *Treatise on Strabismus*, printed in Buffalo, in 1844. In 1860 he published the first edition of his *Treatise on Fractures and Dislocations*. This work, which, when first published, contained but 748 pages, reached its seventh edition, containing 1001 pages, in 1884, and is the best known work on the subject in the English language. M. G. Poinsot, of Bordeaux, translated it into French, and a portion of it was translated into German. Dr. Hamilton's *General Treatise on Military Surgery*, the first edition of which was published in 1862, and the second in 1865, is said to be the only book on military surgery written in this country, excepting a small volume from the pen of a Confederate surgeon, published shortly after the war at Charleston. The *Surgical Memoirs of the War of the Rebellion*, in two volumes, were edited by Dr. Hamilton, and published in 1871 under the direction of the United States Sanitary Commission. The first edition of *The Principles and Practice of Surgery* was published in 1872, and the third edition, thoroughly revised, was issued early this year. Other works from his pen are: *Monograph on Fractures of the Patella*, *Health Aphorisms*, and *Medical Ethics*. In addition to these he prepared a number of papers on surgery, and was the inventor of twenty-seven surgical instruments, most of which are now in common use.

Dr. Hamilton's war record, and his professional relations to the case of President Garfield are well known.

Among his fellow practitioners Dr. Hamilton was always held in the highest regard and they availed themselves of every opportunity to show their respect for his abilities. In 1855 he was chosen president of the New York State Medical Society; in 1857 he was president of the Erie County Medical Society; in 1866 of the New York Pathological Society; in 1875 and 1876 of the New York Medico-Legal Society; in 1878 of the American Academy of Medicine; in 1878 and 1885 of the New York Society of Medical Jurisprudence; from 1880 to 1884 he was vice president of the New York Academy of Medicine, and in 1881 was made vice-president of the Woman's National Hospital. In 1868 he was made honorary associate member of the College of Physicians and Surgeons, and in 1869 the trustees of Union College conferred upon him the honorary degree of Doctor of Laws.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM AUGUST 3 TO AUGUST 9, 1886.

Wolverton, Wm. D., *Major and Surgeon.*—Granted one month's leave of absence, to commence on or about August 15, 1886.—*S. O. 104, Division of the Atlantic*, August 7, 1886.

Bentley, Edwin, *Major and Surgeon.*—Ordered from Department of Texas to the Department of the East.—*S. O. 179, A. G. O.*, August 4, 1886.

Appel, D. M., *Captain and Assistant Surgeon.*—Ordered from Department of the East to Department of Texas.—*S. O. 179, A. G. O.*, August 4, 1886.

Middleton, Passmore, *Major and Surgeon.*—Granted leave of absence until September 10, 1886.—*S. O. 100, Division of the Atlantic*, August 3, 1886.

White, R. H., *Captain and Assistant Surgeon.*—Ordered from Angel Island, California, to San Diego Barracks, California, relieving Captain and Assistant Surgeon Leonard V. Loring—*S. O. 64, Department of California*, July 28, 1886.

Loring, Leonard V., *Captain and Assistant Surgeon.*—Granted leave of absence for one month on surgeon's certificate of disability, with permission to apply for an extension of two months.—*S. O. 59, Division of the Pacific*, August 2, 1886.

Adair, Geo. W., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Fort Brady, Michigan.—*S. O. 103, Division of the Atlantic*, August 6, 1886.

Gandy, Chas. M., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply for one months' extension.—*S. O. 103, Division of the Atlantic*, August 6, 1886.

Merrill, James C., *Captain and Assistant Surgeon.*—Assigned to duty as Post Surgeon at Fort Klamath, Oregon.—*S. O. 130, Department of Colorado*, July 30, 1886.

Beniam, Robert B., *Captain and Assistant Surgeon.*—Relieved from temporary duty at Fort Omaha, Nebraska, and ordered to Fort Bridger, Wyoming Territory.—*S. O. 97, Department of the Platte*, August 5, 1886.

RETIRED.

Murray, Robert, *Brigadier-General and Surgeon-General*, U. S. A., August 6, 1886.

APPOINTMENTS.

Harris, Henry S. T., to be Assistant Surgeon with the rank of First Lieutenant, January 5, 1886.

Wood, Leonard, to be Assistant Surgeon with the rank of First Lieutenant, January 5, 1886.

Banister, William B., to be Assistant Surgeon with the rank of First Lieutenant, January 26, 1886.

Mason, Charles F., to be Assistant Surgeon with the rank of First Lieutenant, May 5, 1886.

PROMOTIONS.

Bartholf, John H., *Captain and Assistant Surgeon.*—To be Surgeon with the rank of Major, January 4, 1886.—*Mem. A. G. O.*, August 2, 1886.

Kimball, James P., *Captain and Assistant Surgeon.*—To be Surgeon with the rank of Major, January 24, 1886.—*Mem. A. G. O.*, August 2, 1886.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING AUGUST 7, 1886.

Hutton, W. H. H., *Surgeon.*—To proceed to Key West, Florida, for temporary duty, August 7, 1886.

Bevan, A. D., *Assistant Surgeon.*—Ordered to examination for promotion, August, 1886.

Williams, L. L., *Assistant Surgeon.*—When relieved at Buffalo, New York, to proceed to Mobile, Alabama, for temporary duty, August 2, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 7, 1886.

Rush, Charles D., *Passed Assistant Surgeon.*—Detached from the Receiving Ship "Franklin," and ordered to the U. S. S. "Pinta."

Willson W. G. G., *Passed Assistant Surgeon.*—Detached from the U. S. S. "Pinta," ordered home, and wait orders.

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ORIGINAL ARTICLES.

THE BACILLUS OF TYPHOID FEVER[1] (TYPHUS BACILLUS OF EBERTH).

BY GEORGE M. STERNBERG, M.D.,
MAJOR AND SURGEON U. S. A.

RECENT researches support the view that the bacillus described by Eberth,[2] in 1880, bears an etiological relation to typhoid fever—*typhus abdominalis* of German authors; and pathologists are disposed to accept this bacillus as the veritable "germ" of typhoid fever, notwithstanding the fact that the final proof that such is the case is still wanting.

This final proof would consist in the production in man or in one of the lower animals of the specific morbid phenomena which characterize the disease in question, by the introduction of pure cultures of the bacillus into the body of a healthy individual. Evidently it is impracticable to make the test upon man, and thus far we have no satisfactory evidence that any one of the lower animals is subject to the disease as it manifests itself in man. The recent experiments of Fränkel and Simmonds[3] show, however, that this bacillus is pathogenic for the mouse and the rabbit. We shall refer to the experiments of these authors later.

Before the publication of Eberth's first paper Koch had observed this bacillus in sections made from the spleen and liver of typhoid cases, and had made photomicrographs from these sections. His name is, therefore, frequently associated with that of Eberth as one of the discoverers of the typhoid bacillus. Other investigators had no doubt previously observed the same organism, but some of them had improperly described it as a micrococcus. Such a mistake is easily made when the examination is made with a low power; even with a moderately high power the closely crowded colonies look like masses of micrococci, and it is only by focussing carefully upon the scattered organisms on the outer margin of a colony that the oval or rod-like form can be recognized.

Several observers had noted the presence of microorganisms in the lesions of typhoid fever prior to the publication of Eberth's paper, and Browicz,[4] in 1875, and Fischel,[5] in 1878, had recognized the presence of oval organisms in the spleen which were probably identical with the bacillus of Eberth.

[1] Read at the meeting of the Association of American Physicians, Washington, D. C., June 18, 1886.

[2] Der Bacillus des Abdominal Typhus; Virchow's Archiv, 1880, Bd. 81, second paper; Ibid., 1881, Bd. 83.

[3] Die Ætiologische Bedeutung des Typhus-bacillus. Hamburg und Leipzig, 1886.

[4] Handbuch der path. Anat., Birch-Hirschfeld.

[5] Prager med. Wochenschrift, 1878, p. 33.

The characters which serve to distinguish this bacillus are given by Eisenberg[1] as follows:

"MORPHOLOGY.—Bacilli, three times as long as broad, with rounded ends, may grow to long threads—*scheinfäden*—and are also found as very short rods; are mobile, and probably possess flagella; take the aniline colors less intensely than most similar organisms.

"GROWTH.—*Upon gelatine plates:* superficial grayish-white colonies with serrated margins; under a low power these resemble glass-wool and have a brownish lustre. *Stick cultures in gelatine:* growth, for the most part, superficial in the form of a grayish-white layer with serrated margins; but little growth along the track of the needle. *Upon agar-agar:* superficial growth of a whitish color. *Upon potato:* invisible growth; after forty-eight hours the pieces of potato have a moist appearance; when the surface is disturbed with a platinum needle one receives the impression that it is covered with a cohering film; under the microscope this is found to consist of long spore-bearing threads of typhus bacilli. *Upon blood serum:* grows only along the track of the needle as a milk-white layer; grows slowly.

"SPORE-FORMATION.—At 32°–40° C. spores are formed in the course of three or four days; these are located at the ends of the rods. At 20° C. spores are formed after a longer period; at lower temperatures than this, spores are no longer formed."

The bacilli are best stained in sections by placing these for twenty to twenty-four hours in a solution of methyline-blue made by pouring a saturated alcoholic solution of this dye into water until it is of an intense blue color and quite opaque. The sections are washed out in water, not acidulated, then in alcohol, and finally in cedar oil, after which they are mounted in balsam. This is the method first recommended by Gaffky.[2] According to Eisenberg, the bacilli are not stained by Gram's method of double staining. A character which seems to be quite constant has been pointed out by Meyer, Friedländer, and others. This consists in the appearance of unstained portions of the bacillus which look like vacuoles in the interior or defects upon the margin of the rod. These unstained places have a circular or oval contour, and may be of one-half to three-fourths the diameter of the rod itself. They usually lie in the middle line, but may be upon the margin.

Of all the diagnostic characters given, the peculiar growth upon potato, first pointed out by Gaffky, is the most important. This serves to distinguish the typhoid bacillus from similar organisms which in their morphology and growth upon gelatine or upon agar-agar closely resemble it. The rods, as first pointed out by Eberth, have rounded ends, but this is by no means peculiar to the typhoid bacillus. They vary greatly in length, and while the prevailing form is that of a short rod three or

[1] Bakteriologische Diagnostik, Tab. 25.

[2] Zur Ætiologie des Abdominal Typhus, Mitth. a. d. k. Gesundheitsamte, Berlin, 1884, ii. 372–420.

four times as long as broad, filaments of considerable length are developed in cultures made in gelatine or upon potato. This is shown in Figure 1, in which, also, a certain number of rods containing spores have been drawn. The amplification in this figure is about 1200 diameters.

Fig. 1.

The researches of Gaffky, recorded in his paper referred to, strongly support the view that the bacillus under consideration bears a causal relation to typhoid fever. Eberth was only successful in finding the bacillus in the lymphatic glands or in the spleen in eighteen cases out of forty in which he searched for it. On the other hand, he failed to find it in eleven cases of various nature—partly infectious processes—and in thirteen cases of tuberculosis in which the lymphatic glands were involved, and in several of which there was ulceration of the mucous membrane of the intestine.

Koch,[1] independently of Eberth and before the publication of his first paper, had found the same bacillus in about half of the cases examined by him, and had pointed out the fact that they were located in the deeper parts of the intestinal mucous membrane, beyond the limits of necrotic changes, and also in the spleen, whereas the long, slender bacillus of Klebs[2] was found only in the necrosed portions of the intestinal mucous membrane.

The researches of W. Meyer[3] (1881) gave a larger proportion of successful results. This author confined his attention chiefly to the swollen plaques of Pyer and follicles of the intestine which had not yet undergone ulceration. The short bacillus which had been described by Eberth and by Koch, was found in sixteen out of twenty cases examined. The observations of this author are in accord with those of Eberth as to the presence of the bacillus in greater abundance in cases of typhoid which had proved fatal at an early date.

The fact that in these earlier researches the bacilli were not found in a considerable proportion of the cases examined, is by no means fatal to the view that they bear an etiological relation to the disease. As Gaffky says in his paper referred to:

"This circumstance admits of two explanations. Either in those cases in which the bacillus has been sought with negative results, they may have perished collectively, before the disease-process which they had induced had run its course, or the proof of the presence of bacilli was wanting only on account of the technical difficulties which attend the finding of isolated colonies."

[1] Mitth. a. d. k. Gesundheitsamte, Berlin, 1881, 1.
[2] Virchow's Archiv, 1881, Bd. 83.
[3] Inaug. Diss., Berlin, 1881.

Gaffky's own researches indicate that the latter explanation is the correct one.

In 28 cases examined by this author, characteristic colonies of the bacillus were found in all but two. In one of these, 146 sections from the spleen, liver, and kidney were examined, without finding a single colony, and in the other a like result attended the examination of 62 sections from the spleen and 21 sections from the liver. In the first of these cases, however, numerous colonies were found in recent ulcers of the intestinal mucous membrane, deeply located in that portion of the tissue which was still intact. These recent ulcers were in the neighborhood of old ulcers, and are supposed to have indicated a relapse of the specific process. In the second case the negative result is thought by Gaffky to have been not at all surprising, as the patient died at the end of the fourth week of sickness, not directly from the typhoid process, but as a result of perforation of the intestine.

Gaffky has further shown that in those cases in which colonies are not found in the spleen, or in which they are extremely rare, the presence of the bacillus may be demonstrated by cultivation; and that, when proper precautions are taken, pure cultures of the bacillus may always be obtained from the spleen of a typhoid case. Hein[1] has been able to demonstrate the presence of the bacillus, and to start pure cultures from material drawn from the spleen of a living patient by means of a hypodermatic syringe. Quite recently Philopowicz[2] has reported his success in obtaining cultures of the bacillus by the same method.

The fact that a failure to demonstrate the presence of microörganisms by a microscopic examination cannot be taken as proof of their absence from an organ, is well illustrated by a case (No. 18) in which the bacillus was obtained by Gaffky from the spleen and also from the liver, in pure cultures; whereas in cover-glass preparations made from the same spleen he failed to find a single rod, and more than 100 sections of the spleen were examined before he found a colony.

To obtain pure cultures from the spleen, Gaffky first carefully washes the organ with a solution of mercuric chloride—1:1000. A long incision is then made through the capsule with a knife sterilized by heat. A second incision is made in this with a second sterilized knife, and a third knife is used to make a still deeper incision in the same track. By this means the danger of conveying organisms from the surface to the interior of the organ is avoided. From the bottom of this incision a little of the soft splenic tissue is taken up on a sterilized platinum needle, and this is plunged into the solid culture medium, or drawn along the surface of the same, or added to liquefied gelatine and poured upon a glass plate. The colonies develop in an incubating oven in the course of twenty-four to forty-eight hours.

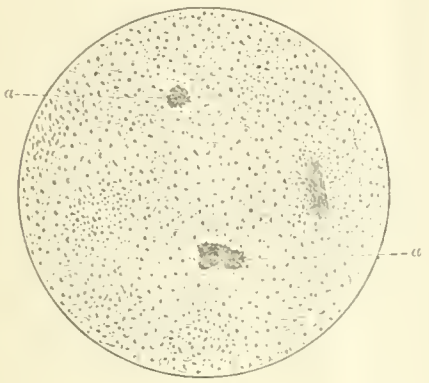
Gaffky has also shown that the bacillus is present in the liver, in the mesenteric glands, and, in a

[1] Centralblatt f. d. med. Wiss., Oct. 4, 1884.
[2] Wien. med. Blätt, 1886, Nos. 6 and 7.

certain proportion of cases at least, in the kidneys, in which it was found in three cases out of seven.

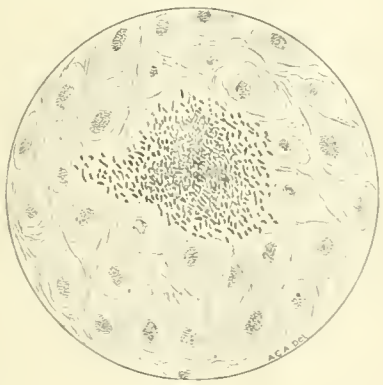
The appearance of the colonies in stained sections of the spleen is shown in Figs. 2 and 3. Two

FIG. 2.



colonies are seen in Fig. 2 (at *a*, *a*) as they appear under a low power—about 60 diameters. In Fig. 3 one of the colonies is seen more highly magnified—about 500 diameters.

FIG 3.



Fränkel and Simmonds[1] have recently demonstrated that the bacilli multiply in the spleen after death, and that numerous colonies may be found in portions of the organ which have been kept for twenty-four to forty-eight hours before they were placed in alcohol, when other pieces from the same spleen placed in alcohol soon after the death of the patient show but few colonies, or none at all.

This observation does not in any way weaken the evidence as to the etiological *rôle* of the bacillus, but simply shows that dead animal matter is a suitable nidus for the typhoid germ, a fact which has been repeatedly demonstrated by epidemiologists, and insisted upon by sanitarians.

The authors last referred to confirm Gaffky as regards the constant presence of the bacillus in the spleen. In twenty-nine cases they obtained it by plate cultures twenty-five times, and remark that in the four cases attended with a negative result, this result is not at all surprising, inasmuch as the typhoid process had terminated and death resulted from complications.

Gaffky did not succeed in obtaining cultures from the blood of typhoid fever patients, and concludes from his researches that if the bacilli are present in the circulating fluid it must be in very small numbers. He remarks that possibly the result would be different if the blood were drawn directly from a vein, instead of from the capillaries of the skin. Fränkel and Simmonds also report that gelatine, to which blood drawn from the forefinger of typical cases had been added, remained sterile when poured upon plates in the usual manner—Koch's method. The blood was obtained from six different individuals, all in an early stage of the disease—the second to the third week.

A similar experiment made with blood obtained, post-mortem, from the large veins or from the heart, also gave a negative result in every instance save one. In the exceptional case a single colony developed upon the plate. In view of these results we are inclined to attribute the successful attempts reported by some of the earlier experimenters (Letzerich,[1] Almquist,[2] Maragliano[3]) to accidental contamination and imperfect methods of research. The more recent work of Tayon[4] does not inspire any greater confidence. This author obtained cultures in bouillon by inoculating it with blood drawn from a typhoid patient, and found that these were fatal, *in a few hours*, to guinea-pigs, when injected into the peritoneal cavity. The lesions observed are said to have resembled those of typhoid fever—congestion and tumefaction of Peyer's plaques and of the mesenteric glands, congestion of the liver, the kidneys, etc.

The presence of the bacillus of Eberth in the alvine evacuations of typhoid patients has been demonstrated by Pfeiffer,[5] and by Fränkel and Simmonds.[6]

When Gaffky's research was made, Koch's admirable "plate method" for the separation of microorganisms contained in such material as feces, etc., had not been published, and this author did not succeed in demonstrating the presence of the bacillus in the intestinal contents. This demonstration is evidently not an easy matter, for while the bacilli are probably always present in some portion of the intestine during the progress of the disease, it does not follow that they are present in every portion of the intestinal contents. As only a very small amount of material is used in making plate cultures, and as there are at all times a multitude of bacteria of various species in the smallest portion of fecal matter, it is not to be expected that the typhoid bacillus will be found upon every plate. Fränkel and Simmonds made eleven attempts to obtain the bacillus by the plate method, using three plates each time, as is customary with those who adhere strictly to the directions of the master, and were successful in obtaining the bacillus in three

[1] Loc. cit.

[1] Virchow's Archiv, 1876, Bd. 68.
[2] Nord. med. Ark., Stockholm, 1882, xiv., No. 10, 1–31.
[3] Centralblatt f. d. med. Wiss., 1882, No. 41.
[4] Gaz. Méd. de Montpellier, May, 1885.
[5] Loc. cit.
[6] Deutsche med. Wochenschrift, 1885, No. 29, p. 500.

instances—in two in great numbers, and in the third in a very limited number of colonies.

The numerous attempts which have been made to communicate typhoid fever to the lower animals have given a negative result in every instance. Murchison, in 1867, fed typhoid fever discharges to swine, and Klein[1] has made numerous experiments of the same kind upon apes, dogs, cats, guinea-pigs, rabbits, and white mice, without result. Birch-Hirschfeld, in 1874, by feeding large quantities of typhoid stools to rabbits produced in some of them symptoms which in some respects resembled those of typhoid, but these experiments were repeated by Bahrdt[2] upon ten rabbits with an entirely negative result. Von Motschukoffsky[3] met with no better success in his attempts to induce the disease by injecting blood from typhoid patients into apes, rabbits, dogs, and cats. Walder[4] also experimented with fresh and with putrid discharges from typhoid patients and with blood taken from the body after death, feeding this material to calves, dogs, cats, rabbits, and fowls, without obtaining any positive results. Klebs[5] has also made numerous experiments of a similar nature, and in a single instance found in a rabbit, which died forty-seven hours after receiving a subcutaneous injection of a culture-fluid containing his "typhoid bacillus," pathological lesions resembling those of typhoid.

Eberth and Gaffky very properly decline to attach any importance to this solitary case, in which, as the first named writer remarks, a different explanation is possible and the possibility of an intestinal mycosis not typhoid in its nature must be considered.

Gaffky has also made numerous attempts to induce typhoid symptoms in animals by means of pure cultures of Eberth's bacillus, given with their food or injected into the peritoneal cavity or subcutaneously. The first experiments were made upon five Java apes. For a considerable time these animals were fed daily with pure cultures containing spores. The temperature of the animals was taken twice daily. The result was entirely negative. No better success attended the experiments upon rabbits (16), guinea-pigs (13), white rats (7), house mice (11), field mice (4), pigeons (2), one hen and a calf.

Cornil and Babes[6] report a similar negative result from pure cultures of the typhoid bacillus injected into the peritoneal cavity and into the duodenum in rabbits and guinea-pigs.

Quite recently Fränkel and Simmonds have made an extended series of experiments upon guinea-pigs, rabbits, and mice, and have shown that pure cultures of the bacillus of Eberth injected into the last mentioned animals—mice and rabbits—may induce death, and that the bacillus may again be obtained in pure cultures from their organs. It is not claimed that the animals suffer an attack of typhoid fever as the result of these injections, but that their death is due to the introduction into their bodies of the typhoid bacillus, and that this bacillus is thereby proved to be pathogenic.

The failure to produce the characteristic lesions of typhoid in the lower animals is evidently not opposed to the view that this bacillus is the specific cause of such lesions in man. Fränkel and Simmonds quote from Koch in support of this statement, as follows:

"In my opinion it is not at all necessary when we experiment upon animals to obtain precisely the same symptoms as in man. In support of this opinion, I may refer to the infectious diseases which we are able to induce experimentally in the lower animals. Anthrax runs a very different course in animals and in man; tuberculosis does not present itself in precisely the same manner in one species of animals as in another. Phthisis, as it occurs in man, we cannot, in general, produce in animals, and, nevertheless, we cannot assert that the animals experimented upon do not suffer from tuberculosis, and that the conclusions which we draw from such experiments are not perfectly correct."

In Fränkel and Simmonds's experiments a considerable quantity of material was used and the injections were, for the most part, made into the peritoneal cavity—in mice—or into the circulation through a vein—in rabbits. The influence of quantity of material used is especially shown in the case of the mice, and the question arises whether the pathogenic power of the bacillus for these animals does not depend upon the simultaneous injection of the ptomaine developed in cultures as a result of the vital activity of the organism. Thus we read that mouse No. 4 resisted an injection of a dilute solution of culture No. 1, but succumbed to a more concentrated solution, one-fifth of a Pravaz syringe. Mouse No. 5 was not killed by the injection of one-third of a syringeful of a dilute solution, but subsequently died from the injection of one-third of a syringeful of a concentrated solution. Mouse No. 16, injected October 10, with half of a syringeful of a very diluted culture, did not die. The injection was repeated on the 17th October with half a syringeful of a concentrated solution, with fatal result.

In all, thirty-five mice were injected, with a fatal result in twenty-seven cases. In rabbits the injections were commonly made in the large vein of the ear, and the quantity of material injected was considerably greater—from one-third the contents of a hypodermatic syringe to two syringefuls. In some instances death occurred within a few hours, in others on the following day or after an interval of two or three days. It is noticeable that the results differ very greatly as to the date of death and the relative quantity of material required to produce a fatal result. This probably depends to some extent upon the size of the animal, and perhaps partly upon individual differences in resisting power.

The experiments, considered together, show that the typhoid bacillus is not pathogenic for these animals in the same sense as is the anthrax bacillus or the bacillus of rabbit septicæmia. These organisms introduced beneath the skin or into the circulation in the smallest amount infallibly produce death, and

[1] Report of Medical Officer of Privy Council and Local Government Board, London, 1875.
[2] Archiv der Heilkunde, 1876, S. 156.
[3] Centralblatt f. d. med. Wiss., 1876, No. 11.
[4] Die Typhusepidemie von Kloton, Inaug. Diss., Zurich, 1879.
[5] Arch. f. exp. Path. u. Pharm., Bd. xiii.
[6] Les Bactéries, Paris, 1885, p. 432.

at the expiration of a period of time which is tolerably uniform.

In all, seventy-nine experiments upon rabbits were made with the following result: Five injections into the intestine, five into the subcutaneous connective tissue, one into the lung, and two inhalation experiments, *all without result:* twenty injections into the peritoneal cavity furnished two, and forty-six injections into the vein of the ear, twenty positive results—*i. e.*, were fatal to the animal.

In the fatal cases the bacilli were proved to be present in the spleen by culture experiments and by microscopical examination of properly stained sections. The colonies are identical in appearance with those found in the spleen of cases of typhoid in man. The colonies were found in the spleens of the rabbits experimented upon, exactly as in the human subject, sometimes in the trabeculæ, sometimes in the Malpighian bodies, sometimes free in the splenic pulp.

Brieger[1] has recently made some very interesting researches with reference to the chemical substances which are produced as a result of the physiological processes attending the growth of this bacillus.

Having obtained a culture from the spleen of a typhoid patient, and assured himself by comparison with a pure culture given him by Dr. Koch that he was dealing with the right organism, Brieger planted the bacillus in a culture solution containing grape-sugar and salts—*Nährsalzen*—in which it thrived admirably. Such a solution at 30° C. became clouded at the end of twenty-four hours, and gave off an evident odor of ethyl alcohol, which increased from day to day. In addition to ethyl alcohol small quantities of the volatile fat acids were produced, among them acetic acid. Lactic acid was also formed from the grape-sugar. The bacillus grew still better in albuminous culture fluids. It did not in these give rise to the production of sulphuretted hydrogen or of any of the volatile products of putrefactive decomposition, such as indol and phenol. There was no gas-formation in such cultures, even after standing for eight weeks, but a slight odor, resembling that of whey, was given off from the cultures. Repeatedly, but not in every case, Brieger succeeded in obtaining from such cultures a very deliquescent basic product. This was obtained in only very small quantities, even when the cultures had remained in the incubating oven for a month. The physiological properties of this base have convinced Brieger that it is a new ptomaine. In guinea-pigs this ptomaine produced a slight flow of saliva and frequent respiration. Later the animals lost control of their extremities, and of the muscles of the trunk; they fell upon their side, but when placed upon their legs were able to move forward a little; they, however, soon fell again and remained helpless upon their side. The pupils gradually became widely dilated, and failed to respond to light; the flow of saliva became more profuse; no convulsions occurred. Little by little, the pulsations of the heart and the breathing became more frequent. During the entire course of these symptoms the animals had frequent liquid discharges. Death occurred in from twenty-four to forty-eight hours. Post-mortem examination showed the heart to be contracted in systole, the lungs to be hyperæmic, the intestine contracted and pale.

The experimental evidence which we have presented, considered in connection with established facts relating to the propagation of typhoid fever, seems to the writer to be convincing as regards the etiological *rôle* of this bacillus.

No other organism has been found, after the most careful search, in the deeper portions of the intestinal glands involved in this disease, or in the internal organs; on the other hand, this bacillus has been demonstrated to be constantly present. It is undoubtedly present during the lifetime of the patients; and is found in greater abundance in those cases which terminate fatally at an early date. It is not a putrefactive organism and is not developed in the tissues post-mortem, although it has been shown by Fränkel and Simmonds that it multiplies rapidly in the spleen after death, up to the time that putrefactive decomposition commences. This is quite in accord with what we should, *à priori*, have expected, in view of the facts relating to the propagation of typhoid fever. These facts indicate that the disease in question is due to a microorganism which is capable of multiplication external to the human body in a variety of organic media, at comparatively low temperatures, and that it is widely distributed. From the endemic prevalence of the disease over vast areas of the earth's surface, we may infer that it is induced by a hardy microorganism which forms spores. Eberth's bacillus complies with all of these conditions.

There are numerous facts which indicate that the development of an attack of typhoid and the severity of the symptoms depend to some extent upon the quantity of the infectious material introduced into the alimentary canal. Milk or water which has been infected directly by the discharges of typhoid patients is especially dangerous, and there is reason to believe that repeated or concentrated doses of such infectious material may be effective when a single draught of the contaminated fluid, or a greater degree of dilution, would be innocuous.

Again, we have evidence that the typhoid germs may become effective as a result of certain favorable circumstances relating to the individual or to his environment. Those agencies which reduce the vital resisting power of the tissues, and especially exposure to the emanations from putrefying material, to sewer gas, to vitiated air in overcrowded and illy ventilated apartments, etc., are recognized as favorable to the development of typhoid fever where the specific cause is present. All these facts seem to accord with the experimental evidence which indicates that the pathogenic power of the bacillus of Eberth depends upon the formation of a poisonous ptomaine rather than upon a special facility for multiplying in the tissues of a living animal. Indeed, it seems quite probable that its power to invade living animal tissues depends upon the toxic action of this ptomaine; or, it may be, of other ptomaines

[1] Weitere Untersuchungen über Ptomaine, Berlin, 1885.

produced under certain circumstances in the body in excess, or introduced from without. Such toxic agents may serve when the specific germ is introduced into the intestine in comparatively small numbers to give it the mastery over the vital resisting power of the tissues subject to invasion, and thus to induce an attack of the disease.

PRELIMINARY NOTES ON SOME OF THE PROPERTIES OF SODIUM FLUORIDE.

By LOUIS KOLIPINSKI, Pharm. D., M.D.,
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The value of the alkaline iodides and bromides in practical medicine is so great that for some diseases and morbid phenomena they deserve the title specific. These compounds and their negative elements have, therefore, long been of general interest and the subjects of much special study. The chemical and physical properties of the halogen group arrange its constituents on a scale in which gaseous chlorine is first, liquid bromine second, and solid iodine last. Chlorine, the essential halogen of physiology, is the standard from which the medicinal importance of other members of the group may be judged, for the nearer they are to it in similarity of properties the less active may we hold them as drugs; nevertheless it is, *à priori*, to be supposed that any body ranking with this elementary group is possessed of some power over the human economy, how far this may be medicinal remaining to be determined.

Fluorine is usually classed with the halogens. Its chemistry in the free state has never been satisfactorily determined. Its inorganic combinations are of a definite character, and observations drawn from their effects are positive. It appears, therefore, that the lack of interest with which chemists have long contemplated this unmanageable body need not be transferred to the therapeutic experimenter. However strange it may seem, it is still, so far as I know, true that the fluorine compounds have been almost completely neglected, and with the exception of a few recent articles on hydrofluoric acid in disease, possess no literature in medicine. So far has this disregard extended that negative qualities have been assigned to this element. Thus Nothnagel and Rossbach,[1] in their work on materia medica, say: "Fluorine is without physiological or therapeutical importance."

Reflections like the above induced me to attempt some experiments with the view of becoming more familiar with this little known body and, if possible, to determine whether any of the inorganic fluorides could be made of use in therapeutics. Want of time and proper opportunities prevent me at present from presenting a more elaborate study, but in view of the many points of interest touched upon I desire to record in these preliminary notes some of the results obtained, especially as I would wish the whole subject to receive some consideration from those more competent than myself.

Sodium fluoride is described as crystallizing in white anhydrous cubes or octahedrons, soluble in twenty-five parts of cold water, not much more soluble in hot. Its solution attacks glass. It is insoluble in alcohol (and in glycerine). It has an alkaline reaction. The fluorides of sodium and of potassium have a great tendency to unite with HF and form acid fluorides, and consequently they readily give up half their metal to the weakest acids. One or two grains in an ounce of distilled water, with or without an alkaline carbonate, can be preserved for about two weeks with very little change.[1]

It possesses weak germicidal and stronger antiseptic powers. As a germicide it was not found to be active in less proportion than one to fifty, the method of Sternberg for determining the germicidal power of drugs being followed, with the exception of the hermetically sealed flasks. In place of these were substituted small test-tubes. The germs acted upon were those found in broken-down beef tea. It was found to be active as an antiseptic in the strength of one-tenth of one per cent. for clear beef decoction. An artificial culture fluid composed of tartrate of ammonium, sugar, and water, was preserved by 1 in 2733. The following experiment also illustrates this property. Three male adults were given one-eighth of a grain at 12 M., 11.55 A.M., and 12.02 P.M., respectively. Specimens of urine collected before and after the taking of the drug showed that that passed before rapidly grew turbid at the existing temperature, whilst that passed from one to two hours after remained clear during a period of seven days. That collected at the end of from three to four hours underwent the ordinary speedy decomposition. This shows that the fluoride is rapidly eliminated in the urine and that its preservative power is retained in that fluid.

A solution of two-tenths of one per cent. to which defibrinated blood is added prevents the development of germs or of any putrid odor. A solution of nine-tenths of one per cent. having an addition of one-sixteenth of its volume of defibrinated blood (rat, cat) preserved the red corpuscles for several days in their original form. On standing, the globules precipitate, the supernatant liquid being clear yellow. With a less percentage of fluoride the corpuscles become enlarged, though not globular, give out bud-like processes, and, finally, show a granular residue. In adding to the freshly defibrinated blood of an animal (rat) six to seven per cent. of the sodium salts of the halogens, the following is observed: The fluoride blood retains its scarlet

[1] Hdb. d. Arzeimittellehre, 5th ed., p. 259.

[1] The fluoride of sodium used was prepared in the pharmacy of the Children's Hospital, D. C. The method which I think preferable to follow, and one from which the product can be well preserved, is this: The hydrofluoric acid of commerce, which can be procured in small quantities, is added drop by drop to a not too strong solution of the acid carbonate of sodium. Care must be taken that the liquid do not at any time contain any free hydrofluoric acid. To the resulting watery solution of sodium fluoride alcohol is added in equal volume or excess; the precipitate is collected on a filter and dried. The product is in amorphous white crusts having on their under surfaces—next to the filter—a worm-eaten appearance. It can be preserved unchanged in any dry well-closed receptacle, even in a glass bottle. The commercial solution of HF often contains a trace of sulphuric acid from its manufacture, but so small in amount is the resulting sulphate that I have ignored it. In one sample of the salt prepared, no sulphuric acid was appreciable by chemical tests. The gutta-percha bottles in which hydrofluoric acid is kept can be well utilized as vessels for preparing the fluoride.

color. The blood to which the other salts have been added rapidly grows dark. On dilution with distilled water the fluoride liquid shows the turbidity of a fine precipitate. When the undiluted blood is evaporated on glass slides and examined under the microscope the red blood-corpuscles are seen enlarged, but of normal outline, in the presence of the fluoride—altered in various degrees and not distinctly recognizable in the others. This, of course, is observed after the blood has been kept for two or three days. By evaporation the fluoride blood forms microscopic crystals in the forms of crosses, daggers, or six-sided prisms radiating from a centre with their free ends bevelled. Spectroscopically, the blood shows the bands of oxyhæmoglobin. By exposure to the air methæmoglobin is developed.

The taste of the fluoride of sodium is alkaline and salty. When given in medicinal doses it is often noticed that the urine contains unchanged vesical epithelium and occasional cells from the pelvis of the kidney. I have not been able to practise any ready method by which its elimination can be quantitatively estimated, but that this occurs through the kidneys and very soon after absorption follows, I think, from the experiment on the urine recorded above. A saturated solution dropped upon the cornea and into the conjunctival sac of the eye of a dog results in no evidence of pain and no appearance of congestion or inflammation. Applied to the human skin its local action is also negative. Five grains, given to a dog upon meat, produce vomiting in a few minutes, which continues until the stomach is empty, and may then cease or end a little later with much retching and ejection of mucus. A similar quantity introduced into the rectum as an enema results in frequent seromucous discharges. The whole is accompanied with much tenesmus and rectal irritation. The gut is found hyperæmic or pale.

The injection of one or two grains into the subcutaneous cellular tissue and muscles produces symptoms of acute suffering.

A full-grown cat received two hypodermatic injections into the lumbar portion of the back. The respirations for a few minutes were much accelerated. Cries of distress, and savage biting at root of tail, and site of injection. Gnawed with cries of rage at anything presenting itself—a glass stopper, a hot steam-pipe. After an hour the animal is constantly moving about squeezing itself through any narrow space that can be found; six hours later it will not stir, refusing food and drink. This quiet stage continues for more than a day. About the punctures the connective tissue crepitates, the structures are moist from inflammatory effusion, and the muscular tissue is dark and softened.

The intravenous injection of a toxic dose (three grains for the cat) produces in this animal and in the dog, death in a few hours. The depth and force of the respiration are at once increased. The animal, if anæsthetized, rapidly regains consciousness, vomiting begins in a few minutes, and mucus hangs in strings from the mouth. With the vomiting may occur evacuation of feces and urine. At intervals there are movements of unrest with twitchings or tremors of the limbs. For the most part, the animal is quiet and unconscious. This stage begins with the cessation of vomiting, which ends within the first hour. The breathing in this second stage is slow and difficult; the head is held far back and the muscles of extraordinary inspiration inserted about the jaw act strongly. In its entirety it is the picture of the last moments of asphyxia continued for several hours, and may be disturbed by a transitory return of consciousness with efforts at locomotion. The heart continues to beat after the breathing ceases. Similar symptoms result from a large but not fatal dose (two grains for the cat). The animal revives in from six to eight hours. The urine in either case is slightly albuminous and rich in fluorine.

Non-fatal doses injected into the peritoneal sac or into the substance of the liver do not leave any evidences of inflammation after two or three days. Intraperitoneal and intrapleural injections are likewise fatal to the cat, even more rapidly than intravenous, pleural injections acting more rapidly than peritoneal.

Upon toads the action seems to be similar to that described as occurring in the cat and dog. The following experiment serves to show the general features observable:

2.40 P.M. Toad received one-fourth of a grain in eight minims of water through left side of abdomen.

2.50. Tries actively to escape.

2.55. Insp. 72; quiet; head low.

2.57. Tries to escape.

3.03. Active when disturbed; insp. 28.

3.08. Active when irritated; lies flat; legs drawn close to body; breathes at intervals; insp. 2–8.

3.15. Insp. 5; sides deeply receding in expiration.

3.20. No inspiration for a minute; active when irritated.

3.25. Breathes slowly at intervals.

3.25-28. Did not breathe; turned on back; active movements to escape.

3.30. Quiet.

3.40. Active when first touched; allows itself to be placed on its back; heart beating; no respiration; ineffectual efforts to regain normal position and then perfectly quiet as if dead; heart beats 48 with varying force; occasionally a few inspirations.

3.42. Regains first position.

3.45. Efforts to vomit; during intervals of full expansion of jaws they remain half open.

3.48. Jaws closed.

3.50. Moves feebly; does not stir when touched; no inspiration.

3.53. Efforts at vomiting.

3.55. Jaws slightly separated.

3.56. Dead.

4.00. Ventricle does not contract on irritation; auricles full of blood and actively contract when stimulated; twitching of toes; lower half of ventricle white and bloodless.

The clinical testing of this drug has been sufficiently extensive to deserve mention. It was chiefly administered in one of the outdoor medical services attached to this Hospital, during a period of six months. I will briefly mention those affections in which the record of cases shows some certainty, uniformity, and success in its use, and I will premise

by stating the manner in which it was prescribed. The fluoride can be given in aqueous solution or in papers, to be dissolved as needed. It is preferable that an equal proportion of the bicarbonate of sodium be added. When prescribed in the liquid form the total quantity should not exceed two fluidounces, as the power of a strong solution to attack glass forbids its being concentrated or long kept. The tendency of any quantity exceeding the fourth of a grain to produce nausea and vomiting, limits the dose tolerated by a child to this amount. The remedial doses used ranged from one-eighth to one-sixth of a grain, thrice daily. Complaint of slight gastric irritation was made by three different patients. It ceased on reducing the dose or directing it to be taken on an empty stomach.

The largest number of instances in which opportunity was offered for the use of the fluoride were cases of headache in children. Its effects proved quite uniform in most cases, and further showed that it was useless in one variety of this very common complaint. The following is a summary of the results:

1. An adult female received a fall striking the back of the head; a few days after, intense headache began of greatest intensity at the front and summit: the remedy failed to relieve her.

2. A boy of sixteen, whilst at play, was injured about the head; after two days occipital pain began: the result was as in the former case.

These two examples, which Day calls, in children, "cerebral headache," led me to conclude that the remedy possesses no value in the pain developing in the head after a jar or blow. I have not had opportunity to test the matter further.

Gastric or sympathetic headache, from errors in diet or sources of irritation in the intestines, were uniformly relieved by the exhibition of the fluoride.

1. A girl of eight had gastric indigestion with a frontal headache for two days: the pain in the head ceased, the other symptoms remaining.

2. A girl of five years had had headache for some time from constipation: relieved.

3. A boy of twelve, headache and umbilical pain for more than a week: pain in head relieved, that in abdomen remaining.

4. A boy of ten, continuous frontal headache: disappeared under fluoride.

5. A girl of eleven, headache from acute indigestion: relieved at once.

6. A girl of ten, umbilical pain and headache; had been treated for lumbricoid worms: headache cured.

7. A boy of seven, acute indigestion from improper food: headache relieved.

8. A girl of ten, headache for two weeks: relieved.

9. A boy of ten, umbilical pain and headache: latter relieved.

In children headache is often noticed as due to cough, especially when that expiratory effort arises from an irritation in the larynx, as in hyperæmia or catarrh of that part. This form was observed four times, each yielding promptly to the fluoride. A like success was obtained for the neuralgic and anæmic pains observed in girls and boys of nine to fourteen years, who, when debilitated from any cause, usually begin to suffer in this way from the strain of school-life. Five such cases were treated with uniform success; one of these, a girl of twelve, had suffered with paroxysms like migraine, and her state was such that all occupation had been relinquished, and her actions at times were so singular as to be considered irrational. Two of these five cases had a distinct malarial appearance and history.

The result of the treatment of intermittent and remittent fevers was very encouraging.

1. A boy of eleven, remittent fever: promptly arrested.

2. A girl of twelve, the same.

3. A girl of eleven, tertian intermittent fever: arrested in a week. Her attendance was irregular.

4. A girl of eleven, tertian intermittent: arrested at once.

5. A girl of thirteen, quotidian intermittent: arrested.

6. A child of two years, tertian intermittent, arrested at once. Returned after a week, again promptly arrested.

7. A boy of fifteen, quotidian intermittent for several weeks: improved at once. The intensity of the paroxysms reduced and disappearing on the the third day.

8. A boy of fourteen, appearance of malarial cachexia, had tertian intermittent fever six months before, regular paroxysms of headache: arrested at once. Reappeared on the fourth day of treatment for a single time, and then ceased.

Three cases of epilepsy major were treated for some months. They were all of the severest type, and all were approaching the stage of beginning dementia.

The first was a white lad of sixteen, who had formerly been treated in the Children's Hospital and had been discharged after remaining entirely free from any seizures for six months. Soon after his return home the fits reappeared with increased violence and frequency and for more than a year he made the rounds of private and charity treatment according to his father's means. When this boy came under observation he was having from six to twelve seizures a week. His mind was so dulled that ideation of the simplest kind was slow and laborious. A partial cerebral paralysis of the left side developed. Upon very large doses of potassium bromide he improved very much, so that he was free from any spells for a month. Thereupon sodium fluoride was substituted and the treatment continued for more than twelve weeks. Through this time he had an occasional fit at intervals of fifteen to twenty-one days. As described by him, the attacks were of slight intensity and with no after-effects of depression. He has been employed as a carpenter's apprentice, clerk, and so on, and both his parents and he are much pleased at this result. As he was not under constant control he could not receive the additional benefits of the avoidance of exciting causes, especially those from dietetic errors.

The second case was a negro boy of eighteen years. On first presentation he was a lamentable

object. Disheartened at all treatment, his guardian was desirous of placing him in some asylum, as he was a burden to others and helpless to earn his own support. Seizures were very frequent, and his face and head were covered with fresh bruises from the falls received at the period of onset. In the treatment by sodium fluoride he began at once to improve; pain and distressing sensations in the head disappeared, his countenance lost its epileptic look and became animated and intelligent. He was treated for about three months, during which time he had six or seven fits, very slight compared to those which occurred every few days before the drug was given.

The third, a white boy of twelve, was a case similar to the preceding one. Improvement began at once. This boy was likewise relieved of severe and frequent paroxysms of headache.

These are the most striking instances of epilepsy in which this remedy's effects were witnessed, and I would further remark that they were subjected to all the unfavorable circumstances which occur in a dispensary service. The distressing symptoms of bromism may be obviated by replacing at intervals the salt producing them by the fluoride.

In conclusion, I must return thanks to those who have aided me in different ways; to Dr. G. N. Acker, Visiting Physician to the Hospital, to my friends Drs. A. F. Hofer and R. R. Gurley, to Prof. E. T. Fristoe, of Columbian University, and to W. S. Thompson, Esq., of this city.

GONORRHŒAL TUBO-OVARIAN ABSCESS—RIGHT SIDE:

LAPAROTOMY; REMOVAL OF FALLOPIAN TUBE AND OVARY; RECOVERY.

By HOWARD A. KELLY, M.D.,
OF PHILADELPHIA.

The subject of this disease and operation is a German brunette of medium height, twenty-three years of age, and married for three years, but has never conceived. Her husband is of the same nationality, and at present is stout and hale-looking, but at the time of marriage was spare and delicate. Three years earlier he had an attack of gonorrhœa, of which he thought himself cured in three weeks, but just before marriage he was seized with orchitis which he thought due to a strain, and suffered with it for two weeks.

The present illness of Mrs. H. began two weeks after marriage at the first menstrual period, when she was suddenly seized with severe pain in the hypogastrium, and had to be carried to bed, where she lay in constant pain extending as high as the scrobiculus, accompanied by fever, vomiting, and excessive constipation. She felt "all sore inside as if she had caught a severe cold," and was two weeks confined to bed. She has had similar attacks at intervals ever since, obliging her to go to bed for several weeks, and one in the summer of 1885 was especially marked by great pain down the outside of the right thigh.

The first visit of Mrs. H. to me, was on March 31, 1886. She began to menstruate at fourteen, and has never missed a month since. The flow since her marriage has been increasing in amount, and for a year past has been at times excessive, lasting as long as two weeks. The odor has been foul. At the time of marriage she was spare in flesh, although she had been at one time quite stout; when I saw her she was sallow, pinched in expression, and of a cachectic hue. She had been five months under the care of a physician, who told her she had a fibroid tumor which was intimately connected with the side of her womb, and could not be removed without causing her death.

Examination.—A careful bimanual exploration, with due respect to the great tenderness upon deep pressure, showed that the uterus was upright in the pelvis, fixed, and forced to the left side by a mass which occupied the right of the pelvic cavity, and extended behind the organ. A very slight but distinctly perceptible movement of the uterus could be produced by pressure, the space on the left of the cervix being sufficient to admit the index finger. Douglas's pouch was filled by a growth feeling superficially hard, but not solid, and the side of the pelvis was not so packed but that a slight vertical motion could be effected; in sensation, the solidity of a fibroid was wanting.

The patient suffered excessively from constipation, and from the sensation of something being present in the rectum that could not be expelled by straining. She has sat upon a vessel for two and a half hours at a time, in the vain hope that the object might come away and relieve her distress.

April 5, 1886. By the careful use of daily enemata containing inspissated ox-gall, the whole bowel has been well cleaned out, and she seems generally improved by a tonic of quinine, ergotine, and monobromide of camphor. The mass in the pelvis has diminished, so that a nodular condition can be distinguished in the vagina instead of the uniform hard roof.

21st. By the faithful use of a hot douche, the uterus has become more free to move, and the abnormal mass can be felt to be limited to the right side of the pelvis.

28th. A remarkable change has occurred, the uterus lies left latero-flexed, its fundus behind the pubes an inch to the left, displaced by the globular tumor of the right broad ligament. This is a baggy mass extending from the displaced right corner to the pelvic wall and to the pelvic floor below. Its greatest diameter is upward, forward, and to the right.

May 1. Dr. R. P. Harris examined Mrs. H., by appointment in my office, the husband being present, and recommended to them that an early exploratory incision should be made, and, if found practicable, that the diseased growth should be removed. It was very evident to him that the health of the woman was breaking down, and required surgical relief. The next day her condition became more grave, and I decided to operate as early as practicable.

5th. The operation was undertaken, assisted by Drs. Jos. Hoffman and William A. Burns, and in the presence of Drs. R. P. Harris and Baldy, and Messrs. C. W. Sharpless and Henkle. Everything was abso-

lutely aseptic, no antiseptic of any kind was used; an abundant supply of pure water was constantly on hand. The bleeding from the skin and underlying tissues was unusually free. The intestines were of a deep dull red hue, with some lymph and spots of ecchymosis, exhibiting marked evidence of peritonitis. The uterus and tumor were found exactly as previously outlined. The first impression was that it would be impossible to remove the tumor without tearing out other pelvic contents, but encouraged by previous experiences, I slowly proceeded to wedge in my fingers between the tumor and pelvis, and then to separate the parts laterally, until by great care and tedious manipulation, the tumor was freed at all points but two, its broad ligament attachment and a firm adhesion to Douglas's pouch. In the latter situation, on attempting to elevate the mass, a small cyst broke, giving exit to perhaps a drachm of very fetid pus. This was immediately removed, and the operation completed with the greatest despatch consistent with safety. The pedicle was transfixed and tied, removing a long, thick Fallopian tube standing out like a ridge upon an ovary converted into a thick-walled cyst of about 2½ inches in diameter, and somewhat flattened, containing between two and three ounces of greenish, and very offensive fluid pus, which readily ran out when the tumor was incised after the operation had been completed.

To secure room for manipulation the intestines had been drawn out of the incision in the abdomen and wrapped in warm towels. I destroyed the whole pus-secreting surface on the pelvic floor by scraping it thoroughly with my finger and twisting a sponge into it, thus bringing up a quantity of shreds and puriform débris. The long nozzle of a syringe was then introduced, being first carried up under the liver, then over the kidneys, and then into the pelvis, carrying a stream of warm distilled water all over and among the viscera, which were also sponged over with fine sponges secured in long stem-handles. The protruding small intestine was also irrigated, sponged, wiped with fine sublimated towels, and then returned. These steps consumed much time, but were taken with elaborate care to secure perfect cleanliness.

The abdominal wound was now closed with shotted silkworm gut, four sutures to the inch. In making the final closure after all of the sutures had been introduced, it was discovered that a knuckle of small intestine had slipped down under some of the slack sutures, and had been included when they were finally drawn and shotted. This discovery, and the renewal of the sutures, saved the patient from what might have been a fatal attack of strangulation. The possibility of such an accident should be considered, when, for any cause, the flat sponge usually placed over the intestines has not been employed, as in this case, which was due to its having been infected by escaping pus. A glass drainage tube was carried down to the point from which the tumor had been enucleated, and before all the sutures were shotted, blood had welled up in it to the top. Great rigidity of the abdominal walls added much to the difficulties of every step.

The tumor removed was somewhat of the shape and size of the gizzard of a large turkey, and had the feel of a body containing a fluid. The Fallopian tube was closed at its uterine end, but much enlarged at its distal extremity which opened directly into the ovarian abscess, the fimbriæ being at one point quite perceptible upon the surface of the ovary. The whole mass was of the form of a short-beaked retort, with the beak brought in contact with the surface of the body of the retort and luted to it. The internal surface of the cyst was characteristic of old abscess cavities.

The notes of the recovery of the patient are briefly as follows.

6th. In much pain, pulse 146 at morning visit, and 160 when seen at midnight.

7th. A. M. Pulse 136; temp. 102°; no pain, no vomiting, tympanitic; drew off f℥ss pure blood from tube and changed the saturated dressings; P. M., pulse 120; temp. 102°; has taken a cup of milk and limewater during the day; dressings saturated with an ounce of black blood; less tympany; rests well; metrostaxis.

8th. Pulse 96; temp. normal; no flow from tube; no pain; metrostaxis continues.

9th. Pulse 76; temp. 98 8°; bowels moved slightly; complains of nothing but a foul taste; bowels well moved by enema, giving relief. The tube was removed, and on the next day six sutures were taken out, the remainder of the stitches were removed a week after the operation. In eight days she felt well, had a pulse of 80, and a good appetite, bowels regular

18th. Sitting up, is still thin and pale from her long illness, but feels well, is cheerful, has a ravenous appetite, and makes no complaint of any disability except her loss of strength.

Comments.—It is worthy of note that the first onset of the disease occurred at the next menstrual epoch after marriage, and it is probable that the virus then penetrated the ruptured follicle and established itself in the ovary in that way. It would be difficult to understand how an entrance through the capsule of the ovary could otherwise be effected, or why it should under other circumstances elect to penetrate the peritoneal coat of the ovary rather than that of some neighboring organ or tissue. Pyosalpinx is probably a step short of this stage, and represents an adhesive inflammation between ovary and tube in such a manner as to prevent the rupture of follicles into the dangerous area.

These cases of disease in the lesser pelvis, being confined almost or entirely below the pelvic brim, usually present great difficulties to the operator. The abdominal walls are often very fat, and owing to the fact that most of the patients have either never borne children or have for many years been sterile, the rigidity and inelastic condition of the muscles cannot be overcome. The difficulties of manipulating small structures bound down in the pelvis are at times vastly greater than in the most tedious ovariotomy. The pelvic adhesions are sometimes so intimate that portions of the structures are left behind, and in cases like the one under consideration, the most efficient drainage alone is but a dangerous and

unreliable way of attempting to prevent septic peritonitis.

I propose in future to meet these difficulties as follows: In the first place, where the abdominal walls are rigid and the intestines are being forced out so as to impede the view of the pelvis, I shall enlarge the incision as much as may be necessary, and turning out the intestines envelop them in an oil-silk bag on which hot cloths can be laid, and then proceed to examine the unobstructed pelvis. Scraping, followed by a thorough application of solution of the bichloride of mercury, and careful wiping out, will probably be the best plan for treating discharging areas.

Or again, where evidences of septicæmia arise within a few days after the operation, I shall reopen several inches of the wound and wash out freely the whole abdominal cavity with hot water. I had made every preparation to do this on the second day in the case of Mrs. H., but the remarkable improvement and fall of pulse rendered interference unnecessary.

113 E. Cumberland St., Phila.,
May 18, 1886.

HOSPITAL NOTES.

OBSTETRIC CLINIC OF PROF. SPAETH, VIENNA.

Service of Dr. Piskacek.

(Reported by E. P. Davis, M.D.)

The following interesting series of obstetric cases occurred recently in the clinic of Prof. Spaeth, during the service of Dr. Ludwig Piskacek, assistant.

Case I. *Placenta prævia totalis in a primipara; perforation of placenta by the accoucheur; spontaneous birth; recovery.*—Marie M., aged nineteen, admitted to the clinic March 2, 1886, at 2.30 P. M. Previous health good; her pregnancy had been without complications, no previous hemorrhage had occurred. First labor pains were felt at 4.30 A. M.; one hour later hemorrhage occurred.

On admission the internal examination revealed the cervix uteri obliterated, the os uteri permeable for two fingers; through the os uteri could be felt a spongy, easily bleeding body, the placenta. It was impossible by examination through the os uteri to determine whether the presenting part was the head or breech; the same was true of examination through the anterior vaginal vault. External examination showed the head over the entrance to the pelvis, the back on the left side, the breech in the fundus uteri, and the feet in the right upper portion of the uterus. Fœtal heart sounds could not be heard; the fœtus was thus in first position, the amount of amniotic fluid small, the head not freely movable. Labor pains increased in intensity and frequence.

As the os uteri was undilated and the patient was greatly weakened by the hemorrhage which had persisted during the forenoon, the vagina was tamponed with iodoform gauze, the patient's limbs were bandaged with flannel, two injections of ether were given and wine soup was administered. The radial pulse increased in strength and volume.

At 6.30 the tampons were removed and the os uteri admitted four fingers, and the head was slightly movable; the pains were strong, and it was resolved to perforate the placenta, and this was done; with the next pain the head became fixed in the pelvis and the hemorrhage abated; as some bleeding still persisted, three iodoform tampons were placed about the os uteri; with each pain the tampons were forced downward, and at 7 o'clock they were expelled from the vagina; with the following pain a dead female child, weighing 1600 grammes, was born.

To avoid post-partum hemorrhage, the placenta was quickly expelled by Credé's method; the vagina irrigated with a two and one-half per cent. solution of carbolic acid; an iodoform pencil was placed in the cervix, and the vagina tamponed with iodoform gauze. Immediately after delivery the uterus contracted well; but after a few moments it relaxed, and it was necessary to perform uterine massage for three hours to maintain contraction; the vaginal tampons were continued, and heat and stimulants freely used; patient's temperature 98.6° F.; pulse 140.

In the centre of the placenta was the opening through which the fœtus was expelled; the membranes were intact. On the day following the tampons were renewed, and a two and one-half per cent. carbolic acid douche again given.

Temperature in the morning 38° C.; in the evening 38.8° C.; pulse 120. Patient's general condition good.

March 4, A. M., temp. 99.3° F.; P. M. 102.6°; pulse 140.
5th, A. M., temp. 99.5° F.; P. M. 102.6°.
6th, A. M., temp. 100.4° F.; P. M. 103.6°.

Lochia profuse and bloody; on the extremities small reddish blebs which resembled the appearance of scurvy, also nose-bleed. Patient was given acids and chinoidin night and morning in half gramme doses.

7th, A. M., temp. 100.4° F.; pulse 116.
P. M., temp. 102.9°.

Patient was given ergot and chinoidin, half an ounce of sherry wine every hour; appetite remained good, and patient took solid food well.

8th, A. M., temp. 100.7° F.; P. M. 101.8°.
Right parametrium somewhat sensitive.
9th, A. M., temp. 99.7° F.; P. M. 102.2°.
10th, A. M., temp. 99.3° F.; P. M. 101.3°.
11th, A. M., temp. 99° F.; P. M. 102.6°.
12th, A. M., temp. 98.6° F.; P. M. 100.8°.
13th, A. M., temp. 98.6° F.; P. M. 100.8°.
14th, A. M., temp. 98.2° F.; P. M. 99.5°.
15th, A. M., temp. 96.8° F.; P. M. 99.5°.
16th, A. M., temp. 97.7° F.

Patient was able to leave her bed on the 15th; on the 19th, at the request of her father, she was discharged from the hospital.

Examination of blood on the sixteenth day after delivery showed forty per cent. of normal hæmoglobin; corpucles, 1,290,000 to cubic millimetre.

Case II. *Placenta prævia partialis in a primipara; long-continued hemorrhage; transverse position of fœtus; podalic version (Braxton Hicks) through os uteri admitting two fingers; extraction four hours later; recovery.*—Patient S. C., aged eighteen, was admitted on March 2d, at 7 P. M., having hemorrhage at the time of admission.

No authentic previous history could be obtained;

membranes had ruptured at 5 P. M., first pains were felt at 6. Immediately on admission an antiseptic douche was given, and three iodoform gauze tampons were introduced. As the hemorrhage was persisting in utero from the rupture of the membranes, and the patient was already very anæmic, two fingers were passed through the cervix, and podalic version was performed; the fœtus was brought down as a tampon for the true pelvis and lower uterine segment.

At 11 P. M. the os uteri was dilated sufficiently to permit the extraction of the fœtus without danger of lacerating the cervix; a dead child weighing 2100 grammes was delivered. In a quarter of an hour after the birth the placenta was expelled by Credé's method.

For three days after delivery the patient's temperature remained normal. In the evening of the third day an interne, acting without instructions, gave the patient an intrauterine douche; an hour later patient had a chill and temperature rose to 103.1° F.; pulse 140.

March 6, A. M., temp. 102.2°; pulse 120.
P. M., temp. 102.2°; pulse 140.

One-half gramme chinoidin three times daily. Parametrium sensitive on pressure; a laxative given.

7th, A. M., temp. 102.2° F.; pulse 120.
P. M., temp. 102.2° F.; pulse 120.

Chinoidin and cold compresses.

8th, A. M., temp. 101.2°; P. M. { temp. 102.2°. pulse 104.

9th, A. M., temp. 101°; P. M. 101°.

10th, A. M., temp. 99.9°; P. M. 100.4°.

11th, A. M., temp. 98.6°; P. M. 100.8°.

12th, A. M., temp. 97.6°; P. M. 98.6°.

13th, A. M., temp. 96.8°; P. M. 97.6°.

14th, A. M., temp. 97.2°.

Patient's appetite and general condition rapidly improved; she left her bed on the 14th; on the 17th she was discharged.

CASE III. *Placenta prævia totalis in a multipara; patient admitted in the highest degree anæmic; tamponing of vagina; spontaneous birth; normal lying-in period.*—Patient H. S., admitted March 11th in condition of extreme weakness. Stated that the present was her ninth pregnancy, previous confinements normal, her last child born five years before. Until a month previous, present pregnancy had been without complications. Four weeks before admission patient had a sudden hemorrhage at night without known cause, which ceased on assuming a recumbent posture. For three days before admission patient had been about, engaged in her usual vocations.

On the night of March 10th hemorrhage recurred, and the physician called ordered ergot and cold compresses without thoroughly examining his patient. Hemorrhage did not cease, and patient was therefore brought to the hospital at 10.30 A. M.

On admission, patient was exsanguine, no labor pains were present, she was conscious. The vagina was tamponed with iodoform gauze, and by this means the hemorrhage was checked. The limbs were enveloped in flannel bandages, hot cloths placed about the patient, and stimulants were given.

About 7 P. M., the patient having partially reacted, the tampons were removed, the vagina irrigated and digital examination revealed the os uteri permeable for only two fingers, the placenta covering the os with the exception of a small opening at one border; head presenting, the membranes intact. It was determined to rupture the membranes, and allow the head to descend. This was accordingly done, and with the descent of the head labor pains began. The vagina was again tamponed, and labor pains persisting forced the placenta into the vagina, and forced the head and body of the child past the placenta, and birth took place, the child having perished.

Collapse followed delivery, but the patient reacted well, and made an uninterrupted recovery; on the tenth day after delivery she was able to go to her home.

CASE IV. *Decapitation in a case of neglected shoulder presentation after efforts to perform podalic version had failed; extraction of the severed head with the James Simpson forceps; recovery.*—Patient, aged twenty-nine, was brought to the clinic by a midwife, at 9 P. M. March 9th, giving the following history: Married one year, the present her first pregnancy. The first indications of labor pains began on the evening of March 8th. At 4 A. M. March 9th, the membranes ruptured; a midwife was called who examined her patient about 11 A. M., and told her all was right; the pains gradually decreased, and ceased toward evening. At 7 P. M. a physician was called, who diagnosticated a transverse position, and tried for an hour to make podalic version. Failing in this Prof. Bandl was called, and he, not having the necessary assistants and conveniences for operating at the home of the patient, advised her to go to the clinic.

On admission, the patient, of more than ordinary stature, was pale, and exhausted. Measurements of the pelvis gave anterior superior spinous iliac 27 centimetres, cristæ iliac 31 centimetres, trochanters 32 centimetres, conjugata vera 10½ centimetres, conjugata externa 18 centimetres, periphery 87 centimetres. The vulvæ were œdematous; in the perineum a rupture. In the vagina was the left elbow of the child, very œdematous; the left shoulder was fixed in the entrance to the pelvis. The internal os uteri was so firmly contracted around the shoulder and neck, that from this fact, from the tetanic contraction of the uterus, and from the œdema of the shoulder, it was not possible to insert the hand in the uterus even during narcosis. In the cervix uteri were several fresh ruptures; patient's temp. 101.3° F., pulse 100. The child had been dead for eight hours.

When the ineffectual efforts at version and the serious condition of the patient were considered, it was determined to perform decapitation during narcosis. The fœtus lay in the first transverse position, head at the left side, abdomen above. Although the head was at the left, the left hand of the operator was inserted, grasping the neck; the right hand introduced the Braun's decapitation hook, and fixed it; traction was then made downward, and then the hook was elevated. A complete rotation of 360 degrees separated the vertebræ, and a second severed the neck completely. By traction on the prolapsed arm the trunk was then delivered; the hand was quickly introduced to deliver the head, and traction was made on the lower jaw, but owing to the somewhat contracted pelvis this was unsuccessful. In the critical condition of the patient it was necessary to bring the labor to an end at once, and the Simpson's forceps were applied, and the head delivered; the placenta was expelled soon after the delivery of the head. A douche

of 2½ per cent. of solution of carbolic acid was given, iodoform gauze was placed in the vagina; the rupture of the perineum was of moderate size, which the patient had sustained from the different manipulations, was closed with silk; the uterus contracted well without post-partum hemorrhage.

March 10, A. M., temp. 98.6° F.; pulse 96.
P. M., temp. 99.5° F.; pulse 84.

Tampons removed, and douche given, and fresh tampons inserted.

March 11, A. M., temp. 101.5° F.; pulse 108.
P. M., temp. 103.1° F.; pulse 128.

Treatment continued. Abdomen slightly sensitive; bladder paretic, requiring use of catheter.

March 12, A. M., temp. 101.5° F.; pulse 112.
P. M., temp. 103.5° F.; pulse 120.

Lochia somewhat foul; œdema at perineal stitches; sutures were removed, and the wound found overlaid with pus and gangrenous masses; a pseudo-diphtheritic exudate was present. The vagina and uterus were free from exudate; fragments of decidua were also expelled from the uterus.

March 13, A. M., temp. 102.6° F.; pulse 116.
P. M., temp. 103.6° F.; pulse 112.

Intrauterine douche of 2½ per cent. carbolic acid. Perineal and vaginal wounds were douched with solution of 1 : 1000 corrosive sublimate; over the wound surfaces was laid cotton saturated in sublimate solution 1 : 4000.

Patient's general condition good.

March 14. As symptoms of sublimate intoxication appeared, its use was discontinued.

A. M., temp. 101.8° F.; pulse 112.
P. M., temp. 103° F.; pulse 132.

Free douche with carbolic solution 2½ per cent., and the wound surfaces thoroughly painted with undiluted tincture of iodine. These applications and douches night and morning, comprised the antiseptic treatment of the case until its recovery.

March 15*th*, A. M., temp. 102.2° F.; pulse 120.
P. M., temp. 103.0° F.; pulse 120.
16*th*, A. M., temp. 98.6° F.; pulse 96.
P. M., temp. 102.8° F.; pulse 112.
17*th*, A. M., temp. 99.0° F.; pulse 88.
P. M., temp. 101.8° F.; pulse 108.

In the perineal wound islands of healthy granulations; uterus contracted well, was not sensitive; abdomen not distended, and not sensitive. For constipation, infusion of senna fol.

March 18*th*, A. M., temp. 98.6° F.; pulse 80.
P. M., temp. 100.4° F.; pulse 92.
19*th*, A. M., temp. 98.6° F.; pulse 76.
P. M., temp. 100.4° F.; pulse 80.
20*th*, A. M., temp. 97.7° F.; pulse 60.
P. M., temp. 99.5° F.; pulse 64.
21*st*, A. M., temp. 98.0° F.; pulse 60.
P. M., temp. 98.0° F.; pulse 64.
22*d*, A. M., temp. 97.8° F.; pulse 64.
P. M., temp. 99.2° F.; pulse 64.
23*d*, A. M., temp. 88.0° F.; pulse 60.

General treatment consisted of good food, and two large spoonfuls of sherry every hour.

When convalescent, patient was transferred to gynecological ward for closure of perineum; this was readily done, and complete recovery followed.

Case V. *Anatomical abnormality, namely, the opening of the rectum into the vagina, and the presence of only a pigmented spot at the place of the normal anus.*—Patient gave no history of previous injury, or confinement, which could have occasioned this condition, which was, she thought, congenital.

The opening of the bowel was a few centimetres above the posterior commissure. No well-marked sphincter was found, although the patient had never suffered from incontinence of feces. In size and appearance the abnormal anus was smaller and less well marked than a normal aperture.

She was delivered in Spaeth's Clinic under the following conditions: The pelvis was somewhat contracted, and the head failing to descend in the pelvis, the forceps were used. After delivery the patient suffered from diarrhœa, although every possible precaution was taken to insure cleanliness; she made a good recovery.

MEDICAL PROGRESS.

The Treatment of Hydrarthrosis of the Knee by the Methodical Application of Elastic Pressure.—Elastic compression alone exercises persistent action which produces favorable results. A very ingenious proceeding for keeping up continuous compression is that employed by Ruggi, of Boulogne. This surgeon treats hydrarthrosis of the knee by the constant application of a bag filled with shot: this exercises a uniform and permanent action, and produces very rapid absorption of the fluid. The advantage of this procedure consists in its exercising pressure without producing any strangulation, the pressure being applied to the anterior surface of the knee, leaving the other surfaces, especially the posterior, quite free. The only inconvenience attached to this method is the difficulty in maintaining the shot bag always in position. It also condemns the patient to a state of absolute immobility, in the recumbent position, during the whole length of the treatment. To obviate these drawbacks the author employs Esmarch's elastic bandage, and applies it in such a way as to overcome the objections to the ordinary methods of compression. A zinc gutter splint is applied to the back of the knee, and fixed by an ordinary bandage to the leg and thigh. Compression of the knee is now produced by the application of the elastic bandage, which embraces the posterior splint. The compressing force may be very considerable without interfering in any way with the circulation through the limb. The author cites some cases to illustrate his method, and in which he has obtained very satisfactory effects. Compression by the elastic bandage has been employed by English surgeons for many years in the treatment of joint effusions, also in the early stages of pulpy degeneration of the synovial membrane. The novelty of the modified plan suggested in this paper rests in the ingenious method adopted for preventing the bandage exercising undue and undesirable pressure on the vessels in the popliteal space, and to this end it

may, no doubt, be adopted with safety.—*Manchester Medical Chronicle*, July, 1886.

VINEGAR AS AN ANTISEPTIC.—ENGELMANN, of Kreuznach, has used vinegar in several cases of diphtheritis with very good results. He then tested its antiseptic properties by the usual methods, with unexpected results. He found vinegar to be more destructive to microörganisms than a 2½ per cent. solution of carbolic acid. The degrees of dilution for different methods of application were as follows:

For internal use	1 : 4.
As a gargle	1 : 2.
For spraying	1 : 2–3.
For application by the brush . .	Undiluted.

The author suggests the great desirability of further experiments in this regard.—*Centralbl. f. Gynäkologie*, July 17, 1886.

THE DIAGNOSIS OF SYPHILIS FOUNDED ON THE PERIOD OF INCUBATION.—DR. JOHN CHIENE presents the following practical suggestions regarding the diagnosis of syphilis:

If, after a suspicious connection, a period beyond ten days elapses before any local manifestation is evident, then the probability is that we have to deal with a case of syphilis. In such a case begin the mercury at once. In making your diagnosis do not be deluded by a local manifestation, either in the form of a gonorrhœa or a soft sore, either of which appears shortly after connection. The patient asks, "Have I syphilis?" How often is the answer given, "No," in one sense true—true of to-day, so far as any one can tell, but not necessarily true three weeks hence. Your answer should be, "I cannot tell; you *have* a gonorrhœa; you *have* a soft sore, but the time has not yet arrived to enable me to say that you *have not* syphilis. Six or eight weeks must elapse before I can speak with any certainty." The patient is not satisfied; this you cannot help.

Another snare to the unwary practitioner is that the patient always tends to blame the *last* connection. This connection is probably the cause of the gonorrhœa or soft sore, while the patient may have been inoculated previously with the syphilitic poison, which may at the time you see him be lying quiescent, and become evident at a subsequent date. At the end of the first week the gonorrhœa or soft sore becomes painfully evident; the average period of incubation in syphilis is three weeks; if two connections follow one another at an interval of less than a fortnight, it is evident that when the patient comes to you with the gonorrhœa or soft sore you cannot speak of his freedom from syphilis, which may show itself soon after the gonorrhœa, if caught from the first connection; if caught from the second connection, it may not show itself for a fortnight or three weeks after you are consulted.

The hard nodule, typical of syphilis—not a sore, not an ulcer, but an elevation, a local hypertrophy at the seat of inoculation—shows itself from ten days to eight weeks after connection. The average period of incubation is, in my experience, three weeks. This typical local hypertrophy may ulcerate if it is irritated in any way, but ulcerative destruction of tissue is an accident, not an essential of the primary lesion. This fact alone seems to me to go a great way in itself to show that the poison which causes a soft chancre—an ulcer—is different from the poison of syphilis. I cannot say how they were related in the past; I cannot say what may be their relations in the future. Neither an antiquarian nor a prophet, but simply dealing with the conditions as they come before the practical surgeon at the present time, I have no hesitation in saying that there are two distinct poisons—the one giving rise to a local ulcer, the other to a constitutional condition; the one probably more nearly allied to a putrefactive poison, the other to a truly infective poison; the one septic, the other pathogenic.—*Edinburgh Medical Journal*, June, 1886.

CURE OF BASEDOW'S DISEASE BY OPERATION.—PROF. HACK records in the *Deutsche medicinische Wochenschrift*, June 24, 1886, the following case. A girl of seventeen was suffering from Basedow's disease, with well-marked symptoms. The mucous membrane of the nose happening to be so much swollen that she had to keep her mouth almost constantly open, she came to Prof. Hack for relief. He cauterized the smaller mucous membrane on the right inferior turbinated bone, and found next day, to his astonishment, that the exophthalmos on the side operated on had almost disappeared. He operated on the other side, and anxiously awaited the result, which was also favorable, but not such a brilliant success as the first attempt. Strangely enough, the other symptoms likewise improved, and the operation on the nose seems to have cured Basedow's disease itself. Prof. Hack's explanation of the result is that the disease, in this case at least, was purely reflex, and that as soon as the irritation in the nose ceased the disease vanished. The increased action, and even the increased size of the heart, he attributes to the same reflex action; the coronary arteries might be dilated, and thus give the organ an over-plentiful supply of blood. He further upholds his reflex theory by giving parallel cases.—*Manchester Medical Chronicle*, August, 1886.

THE TREATMENT OF EPILEPSY.—ERLENMEYER recommends this mixture, as less disagreeable to the stomach and less likely to produce an eruption than the simple bromide.

Bromide of potassium . . .	4 grm.
Bromide of sodium	4 grm.
Bromide of ammonium . . .	2 grm.
Liq. amm. caust.	1 grm.
Aërated water	600 grm.

Half to one bottle a day.—*Annales de la Société médico-chirurgicale de Liége*, June, 1886.

NASAL INSUFFLATIONS OF QUININE IN PERTUSSIS.—BACHEM, of Bonn, records sixteen cases of whooping-cough, in which intranasal applications of quinine were employed with advantage, and resulted in cure, as a rule, within three weeks.

Quinine muriate is finely pulverized with one-third its weight of gum-arabic, and three grains of the mixture are twice or thrice daily insufflated in such wise that the entire dose is distributed throughout the nasal chambers.

The method in question was originally proposed by Binz, in 1868, and references to those other observers who confirm the claims made for the treatment, are given in the original.—*Centralblatt f. klin. Med.*, June 12, 1886.

Ligation of the Vertebral Arteries for the Relief or Cure of Epilepsy.—Dr. J. L. Gray, of Chicago, records three cases in which the method just indicated was advantageously pursued, and, basing his views on these and other records, presents the following conclusions:

1. Ligation of the vertebral arteries should take its place as a recognized procedure in the treatment of certain cases of epilepsy.

2. The operation should be confined to those cases in which the exciting causes of the attacks come from some region outside the brain.

3. The arteries should be tied as high up as practicable, and the ligature should include all the fibres of the sympathetic accompanying the vessel.

4. Where the side of the brain which is first invaded by the disease can be determined, the artery of that side should be ligated.

5. Where the invasion of the disease is apparently bilateral, both vertebrals should be ligated.

6. This operation should not be done as a substitute, but as an aid to other forms of treatment for the relief or cure of epilepsy.—*The Neurological Review*, July, 1886.

An Easy Method of Distinguishing the Solutions of Carbolic Acid used in Surgery.—Dr. Matthew Hay thus summarizes, in the *Lancet* for August 7, 1886, the means of obtaining the reactions indicated above.

The three reagents suggested are: 1. A saturated solution of chloride of sodium. This precipitates carbolic acid from solutions stronger than 4.8 to 5 per cent. at a temperature not exceeding 18° to 24° C. (64° to 75° F.). It causes no permanent precipitate in weaker solutions. 2. A carbolized saturated solution of carbolic acid. This precipitates carbolic acid from solutions stronger than 3½ per cent., and it does so, in the case of solutions above 4½ per cent., at any temperature below 32° to 35° C. (90° to 95° F.). It gives no permanent precipitate with weaker solutions. This is the best reagent for the simple distinction of the usual surgical solutions—2½ and 5 per cent. 3. Solid chloride of sodium. A small crystal of this precipitates carbolic acid from a saturated solution; whereas, when dissolved even to saturation in a weaker carbolic solution than 1 per cent., it gives no precipitate.

Cold Applications to the Præcordia in Fever.—Grigorovich presents the following conclusions regarding the effect of applying cold water to the region of the heart, based on a series of experimental observations made in the Rostoff military hospital:

1. The cold undoubtedly reaches the heart itself, and thus produces an effect on its action.

2. This effect is particularly noticeable when the cardiac beats are increased in frequency in consequence of a high temperature quickly attained, and where a certain degree of sensitiveness to a high temperature exists.

3. The effect of cold is not marked at the end of a prolonged attack of fever, pathological changes having by that time probably become established in the cardiac muscle.

4. The local application of cold is only capable of protecting the heart-muscle from the effects of a high temperature when it is applied assiduously from the commencement of the disease.

5. Under its influence the action of the heart improves, the number of beats diminishes, while their force and amplitude increase.

6. Cold applied to the region of the heart diminishes the gravity of the *typhoid* condition and favorably influences the respiration.

7. With regard to the effect of cold applied to the region of the heart on the course of the general temperature, Grigorovich cannot at present express a decided opinion, as he did not investigate the question; but in the results which he obtained, indications may be found of the possibility of its causing some diminution of the temperature.—*The Practitioner*, August, 1886.

Soft Chancre of the Middle Ear.—The *Gaseta Lekarska*, a Polish medical journal, contains a report by Dr. Guranowski of a case of soft chancre of the middle ear. The patient was a woman with a phagedænic chancre of the genitals, who, from snuffing tobacco, managed to introduce the virus into the nose, where the septum had become ulcerated, with copious discharge of the foul pus. From this the infective material must have passed through the Eustachian tube into the middle ear. Deafness and pain were complained of, and subsequently perforation of the tympanic membrane occurred, a large quantity of purulent matter being discharged through the opening and infecting in its turn the external meatus. The case was treated by the introduction of iodoform into the ear and nose, and by injecting warm water through the ear by means of the Eustachian catheter. In a month's time the patient regained her power of hearing and completely recovered. Dr. Guranowski has a great belief in the efficacy of washing the middle ear with warm water, having seen cases of severe inflammation recover under this treatment where it was feared that the only hope of saving the patient's life lay in trephining the mastoid process.—*The Lancet*, August 7, 1886.

Kauri Gum as a Medicinal Substance.—Many years ago Dr. Hammond, of Bournemouth, presented me with a fine specimen of Kauri gum, which one of his sons had brought from Auckland, in New Zealand. In experimenting with the gum thus supplied I have found that it may be made to perform many useful services in medicine. When the gum is burned—and it burns briskly—it gives out a very pleasant odor which destroys the odor of putrefying organic substances most effectively. Dissolved in spirit it makes a fluid which burns in the lamp with good effect. Reduced to a fine powder and shaken with water, it communicates to the water new properties, so that sprayed in a room it renders the air ozonic. It mixes well with ointments, forms a good combination with soap, and combined with iodine is a useful deodorizer and disinfectant. The gum is from a pine, the Kauri tree, *Dammara australis*. —Dr. B. W. Richardson, in the *Asclepiad*, July, 1886.

Gaseous Medication per Rectum.—The ingestion of gaseous medicines by the lower bowel was the subject of a recent communication by M. L. Bergeon to the Paris Academy of Sciences (*Comptes Rendus*, July

12th). His research has extended to a variety of diseases, but for the present he only records his experience in the treatment of pulmonary phthisis. After having tried a variety of balsamic substances of parasiticide or antiseptic repute, M. Bergeon gave the preference to sulphurous mineral waters (Eaux Bonnes, Challes, etc.). A current of from four to five litres of carbonic acid gas traversing from 250 to 500 grammes of sulphurous mineral water was introduced per rectum twice in the twenty-four hours. After a few days' use, cough was notably diminished and almost suppressed, the expectoration greatly modified in quality and quantity, the sweating stopped, and the general state improved; and that not only in incipient, but also in confirmed phthisis. Daily auscultation established the disappearance of moist râles.—*The Lancet*, August 7, 1886.

Conditions which Aggravate Syphilis.—Fournier maintains that the gravity of syphilis depends not so much upon the quality of the syphilitic virus as upon certain physical conditions existing in the infected individual. These conditions he discusses as follows:

1. Alcoholism. A powerful factor in increasing the virulence of this affection, favoring the spreading and increasing the intensity of the cutaneous lesions; producing severe symptoms, tertiary in character, early in the secondary stage of the disease; creating special types of eruptions, malignant, and involving large areas of the skin surface, causing more frequent outbreaks of the syphilides, depressing the system and sometimes determining a cachexia, which brings on death at times, and finally predisposing to early nervous manifestations and causing deposits in the brain and spinal marrow.

2. Age. Syphilis is always severe at the two extremes of life. In the infant the disease, whether inherited, congenital, or acquired, is very frequently fatal, this being in strong contrast with its benignity in the child, two, five, or six years of age. In the adult it is usually mild. After fifty or fifty-five years the disease begins to be severe, and in old age it is extremely virulent, the chancre having a tendency to become large and phagedenic, the syphilides ulcerating easily, tertiary symptoms, gummata, and cerebral syphilis showing themselves early.

3. Scrofula and tuberculosis act on syphilis and give rise to special symptoms, and at the same time syphilis exerts an unfavorable influence on those diseases. In those cases the syphilides have a moist, suppurating, and fistulous character; ocular, osseous, and articular lesions are frequently present; and the larynx, pharnyx, and nose are early and deeply involved. In scrofulous subjects a particular, mixed kind of inflammation of the glands is noticed and in young subjects lupus is common. In patients with a tuberculous tendency pulmonary lesions are very often hastened.

4. Malaria also predisposes to grave forms of syphilis, as is known to all those who have had the opportunity of following the latter affection in persons affected with malarial toxæmia.

5. All the agents which depress the vital economy can serve as factors of virulence in syphilis, such, for instance, as extreme poverty, bad hygiene, insufficient alimentation, previous or accompanying disease, pregnancy, prolonged lactation, fatigue, mental worry, etc.; the most common, and, therefore, the most important of these being extreme poverty.—*New Orleans Medical and Surgical Journal*, August, 1886.

Iodoform Poisoning.—In an article thus entitled in the *Boston Medical and Surgical Journal*, of August 5, 1886, Dr. E. G. Cutler presents a very full bibliography of the condition in question, together with the following conclusions:

1. Fresh wounds or unhealthy or tuberculous surfaces are the only ones fitted for the application of iodoform.

2. Only a thin layer or small amount of iodoform is to be applied.

3. When granulations appear healthy, iodoform should be omitted and some other non-poisonous substance substituted.

4. At the first symptom of poisoning, or coincidently with the original use of it, compounds of the alkalies and vegetable acids are to be given by the mouth at frequent intervals, as acetate of potash. If severe symptoms supervene, transfusion with common salt solution is to be resorted to, and the wound is to be washed free from iodoform with pure water and an alkaline carbonate solution and afterward powdered magnesia is to be dusted on.

The Pathogenesis of the Essential Anæmias.—Silbermann presents the following conclusions from an elaborate experimental investigation: 1. Progressive pernicious anæmia is induced by an increased and abnormal destruction of red and white corpuscles and by defective blood regeneration. 2. Pernicious anæmia is essentially a hæmoglobinæmia. 3. The blood in pernicious anæmia is exceptionally rich in fibrin ferment, and is thereby dangerous to the organism. 4. The frequent dermal, mucous, and retinal extravasations in this disease are due to capillary emboli or to capillary stasis. 5. The anæmic fever is of humoral origin and is conditioned by the large proportion of ferment in the blood. 6. The intermittent character of the fever corresponds with the changing phases of the blood destruction. 7. The large, fatty deposits sometimes observed in pernicious anæmia are not conditioned alone by the diminution in tissue respiration caused by decrease in hæmoglobin, but chiefly by an abnormal distribution of blood, consisting in a very considerable venous stasis and arterial anæmia. 8. In animals the gradual introduction of a blood-dissolving agent, or of hæmoglobin dissolved in serum, induces a condition which strikingly resembles pernicious anæmia. 9. One form of chlorosis, and also simple primary anæmia are essentially forms of hæmoglobinæmia of mild grade.—*Berliner klin. Wochenschrift*, July 26, 1886.

Vaccination in Japan.—The Japanese do not appear to have lost any of their faith in the efficacy of vaccination for the smallpox. They have just enacted a very stringent law on the subject, for, besides ordinary vaccination in the first year of infancy, it provides for at least two subsequent revaccinations at intervals of from five to seven years, so that by the time a child has reached its fifteenth year it will have been vaccinated three times. During epidemics of smallpox, local authorities also have power, when they deem it necessary, to order the vaccination of all the inhabitants of their districts, irrespective of the vaccinations required by the law.—*Sanitary Record*.

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NEUROTIC ASTHMA AND OTHER NEUROTIC MALADIES IN THEIR RELATIONS TO INTRANASAL DISEASE.

DURING the past five years or so, the nose has been taking a progressively prominent position in the features of continental periodical medical literature; the main impetus thereto having been given by HACK, of Freiburg, who, under the term reflex neuroses, has spurred attention to the frequent association of diseases of the nasal passages with various nervous disorders. Stripped of both fanciful and hypothetic investiture, the naked truth seems to be that in many neurotic individuals, whether intellectually neurotic, æsthetically neurotic, neurosthenically neurotic, neurasthenically neurotic, hysterically neurotic, or in any other way neurotic, various irritations of the terminal fibrils of the fifth pair of nerves in the mucous membrane of the respiratory domain of the nasal passages, or of the nerves of special sense in the olfactory domain, are transmitted, sometimes through the tracts of the sympathetic system of nerves, sometimes through the reflex zones in the cerebrum, to various motor and sensory tracts, especially those in the domain of the pneumogastric. Thus these neurotic subjects are liable to manifestations of disease or disorder in distant organs. Taking all the publications together, the list claimed includes spasmodic asthma, bronchitis, bronchial spasm without asthma, spasm of the larynx, spasmodic aphonia, spasmodic cough, spasmodic sternutation, hysterical paralysis of the larynx, palpitation of the heart, chorea, epilepsy, cephalalgia, supraorbital, facial, and dental neuralgia, gastralgia, nightmare, vertigo, syncope, cutaneous nasal erythema, unilateral hyperidrosis of face or of extremities, super-salivation, facial œdema, and articular rheumatism: all as reflex manifestations of pathological conditions existing in the nasal passages or excited therein. It is claimed, too, that these reflex neuroses are best treated by curing the intranasal disease or diseased condition from which they are reflected; with special reliance on rhinochirurgical procedures, and particularly on such as are performed with the incandescent electric cautery.

Although pain, forcible inspirations, sternutation, lachrymation, tumefaction, and fluxion have probably always been recognized as physiological results of irritation of the normal nasal mucous membrane; and although, in suspended respiration, the abeyant respiratory and cardiac divisions of the pneumogastric, have long been habitually started into function by excitation of the nasal mucous membrane, as when ammonia is held near the nostrils of a lady in syncope; and, not to mention less recent authors who were familiar with the effects of pollen dusts, ipecacuanha powder, odoriferous emanations, and the like, so recent a writer as Trousseau had described the occasionally intimate relations of asthmatic paroxysms to nasal catarrhs and to pharyngeal disorders; and although his physiological researches had drawn from Müller the opinion that the system of respiratory nerves is capable of convulsive excitation by topical irritation of any portion of the body invested with mucous membrane (Boecker), it was not until after Voltolini, of Breslau, had, in 1871, published an account of some instances of asthma in which the paroxysms had ceased after extirpation of nasal polypi, which he, therefore, felt reason to regard as a causal factor, that the profession seemed to realize that occlusion of the nasal passages might produce morbid manifestations at a distance.

Nearly every one who has suffered with a cold in the head, has experienced sudden relief by subsidence of turgescence in one occluded nasal passage with sudden onset of obstructive turgescence in the other. If the sufferer lies with the obstructed side uppermost it will soon become permeable, while the permeable lower side will become obstructed in its turn, and then, by turning on the back so as to catch the retransition half way, considerable relief will often be secured; sufficient at times to enable the sufferer to go to sleep without keeping the mouth open. What the vascular connection between the structures in the two nasal passages that produces the interchange, awaits explanation from anatomist, physiologist, and clinician. Mere gravity will not account for transmission of turgescence from one set of turbinate bodies to the other on change of position from one side to the other; although it may explain the subsidence on both sides posteriorly when the subject lies on his back; for then the exceedingly vascular posterior portions of the turbinate bodies

may become surcharged, and so produce sufficient relief anteriorly to permit resumption of nasal respiration. When this posterior turgescence is so excessive, however, as to occlude the choanæ and prevent nasal respiration, the subject is sometimes aroused from sleep with a paroxysm of dyspnœa, often mistaken for a paroxysm of asthma; a paroxysm relieved almost at once by opening the mouth on the one hand, or on the other by raising the body to the vertical position, and thus favoring partial subsidence of the turgescence; or by a combination of the two acts, usually intuitively. Should the patient be in too narcotic a slumber to be aroused immediately by his dyspnœa, the paroxysm may become transformed into a nightmare.

The turbinated bones are invested with a mucous membrane in actual fusion with the periosteum. Upon the whole of the lower turbinated bone, on the free border of the middle turbinated bone, and at the posterior portions of all three turbinated bones, this mucoperiosteal investment is composed in great part of an embedded cavernous system of veins (Hopmann, Zuckerkandl) with endothelial walls only (Voltolini), which permits great distention of the tissue, whether physiological or pathological. Physiologically to warm the inspired air, to ward off injurious effects from sudden atmospheric changes, to keep out foreign matters, or to favor serous effusion to wash out foreign or morbid products; pathologically, the result of irritation or of disease. Similar but less extensive turgescible tissue exists in other portions of the nasal mucous membrane, in all portions, in fact, except the olfactory fissure (Zuckerkandl, cited by Hering). This turgescible mucoperiosteal investment of the lower turbinated bone, the one most frequently implicated, comprises in its quiescent attitude fully nineteen-twentieths of the entire structure of the turbinated body, the bone forming one-twentieth only (Voltolini). Some untenable hypotheses have gained credence on the assumption that the cavernous portion of the mucoperiosteum of the turbinated bodies was a special tissue or a special organ, "corpus cavernosum," distinct from the tissue proper of the mucous membrane, the periosteum, and the bone. The turgescent condition, believed by some observers to be normal, and by others to be abnormal, can be excited in some subjects by stroking the tissue with a probe; but in others this procedure fails. Persistent turgescence must be regarded as abnormal. Permanent distention of this turgescible tissue sometimes leads to thickening of the connective tissue, and perhaps to alteration in the unstriped muscular fibre surrounding the vessel, and to change in the size and number of glands embedded in the meshes of the tissue. It is then a pathological hypertrophy subject to but slight subsidence, and therefore often —not always by any means—a permanent source of irritation requiring surgical interference just as does a hypertrophied tonsil which produces continuous or progressive injurious disturbance.

Voltolini attributed the asthmatic paroxysms in his cases of nasal polyp, some with permeable, some with impermeable nasal passages, to modifications in the chemical interchanges of respiration due to mechanical obstruction thereto, rather than to reflex action; the possibility of which latter, however, he fully expressed. The infrequence of asthma associated with nasal polyp, accounts for its tardy recognition. Recently instituted statistical investigation, purposely pursued in every accessible case of asthma and of polyp, shows that not only is the proportion very small when hunted for (seven in seventy-nine cases and five of the seven in females, Lublinsky; nine in three hundred and ten cases operated upon, Boecker; six out of two hundred, Hering); but that most of the cases occur in decidedly neurotic subjects (Lublinsky), and are, therefore, reflex in origin; attributable, as expressed by Fränkel, of Berlin, some ten years after Voltolini's publication, to an abnormally irritable condition of the sensory nerves. Indeed, Fränkel had seen the asthmatic paroxysm follow the irritation of the mucous membrane as produced by the polyp. Lublinsky has called special attention to the impaired neurotic condition of all his patients with reflex neuroses of any nasal origin whatever. Many were hysterical, many anæmic, poorly nourished or psychically depressed from the most varied causes. Females predominated in his policlinic practice, and the majority of the males had become reduced in circumstances. This disproportion was not present in private practice, but here the majority of the male patients were engaged in severe intellectual labor without proper periods of relaxation.

For some time limited sensory zones have been described as evolving the reflex actions; and, in accordance with the special groups of cases which had presented, were located by different observers in certain portions of the turbinated bodies, or of the septum chiefly; the fact being, as substantiated by pretty general observation, that under various abnormal conditions of the nervous system any portion of the nasal mucous membrane may be the point of evolution for a reflex manifestation. To go further, diseased conditions of the mouth, the gums, the pharynx, the larynx, if not the entire respiratory and alimentary tracts, have been known to give rise to reflex spasmodic disorders. If to these be added the well-known reflexes from the prepuce, and those from the vagina, the rectum, and the urethra, we but come back again to the shrewd observation of Johann Müller, that topical irritation of any mucous membrane may ex-

cite convulsive manifestations in the domain of the respiratory nerve tract; and it may be added, with fair prospect of probability, in the other domains in which reflex manifestations are said to be excited by nasal disease. And so the conclusion may be reached that nasal reflexes are frequent manifestations of the irritation of mucous membranes in general; more frequent than those from other regions, because other regions are less continuously exposed to irritant influences, atmospheric, mechanical, and chemical.

Some of the manifestations attributed to reflex neuroses are doubtless due, as intimated by Voltolini in his initial article, to the change in the rhythm of respiration and the obstruction to proper interchange of the gases of the air and of the blood.

Schech, too, has expressed the opinion that the retention of too much carbonic acid gas in the blood irritates the medulla oblongata, and thus has much to do in provoking reflex neuroses. The important part that the obstruction plays is proven, according to Boecker, by the fact that a commencing paroxysm of asthma can sometimes be cut short by turning up the tip of the nose and dilating the nostrils, so as to enlarge the passage and render respiration freer. The calming effect of applications of cocaine in arresting a paroxysm is attributed by the same writer to enlargement of the calibre of the passage, and not to any anæsthetic effect upon the sensory nerve endings. The same writer has suggested, further, that direct irritations are sometimes conveyed to the tracheal and bronchial mucous membrane which, under normal conditions, are expended on a nasal mucous membrane. To reach a conclusion in any instance, all probable sources of origin must be passed in review, lest undue credit be given to the incorrect one.

That the treatment of the nasal disease evoking the reflex disorder is often essential to the cure of such a disorder hardly admits of a doubt. That such treatment is always followed by cure at a shorter or longer period admits of many doubts. Constitutional treatment addressed to the diathetic, enthetic, and neurotic imperfections of the individual is quite as essential as topical treatment within the nose, and sometimes more necessary. Such treatment, however, often inefficacious before subsidence of the intra-nasal malady, is often promptly efficacious after its subsidence. No hard and fast rule of routine can be adopted; but each case must be mana ed in accordance with the general principles of good practice and of good surgery. While the judicious use of the electric cautery in certain morbid conditions of the intra-nasal tissues is to be commended, its too frequent and growing abuse in slight ailments, more safely subdued by measures less severe, is as highly reprehensible. These views are steadily gaining the support they merit; for it is becoming more and more evident that the electric cautery sometimes does irreparable injury. Among the pernicious results reported by various writers may be enumerated adhesions of opposing surfaces, anosmia, severe hemorrhage, erythema, traumatic erysipelas, œdema of the palate, necrosis of the bones, otitis media, meningitis, temporary delirium, rheumatic swellings (sepsis?), febrile herpes, neuralgia of the fifth nerve (?), epilepsy, and asthma.

It is questionable whether the erectile tissues should be utterly destroyed under any ordinary circumstances, for an atrophic condition of the turbinated bodies is to be deplored as liable to convert an affliction that is bearable into one that is very disagreeable and mortifying.

THE CUTANEOUS ABSORPTION OF OILS.

Recent clinical experience with lanolin has shown that this oil is readily susceptible of cutaneous absorption, and that on this account it is more valuable for external use and for purposes of massage than are the less diffusive organic oils or than petrolatum, which is practically unabsorbed. Ewer in the *Berliner medicinische Wochenschrift*, for July 8, 1886, points out a further advantage possessed by lanolin over similar bodies, namely, that after thorough inunction in massage the remaining lanolin may be thoroughly removed by wiping with a dry cloth. When other fatty bodies have been thus employed subsequent washing with water, and even warm water and soap, becomes necessary, a procedure often disadvantageous, especially in rheumatic joint affections.

No thoroughly scientific study of the extent to which the neutral fats may be absorbed by the healthy skin has been made, but abundant clinical evidence exists that such absorption takes place, and that it, together with the benefits derived from the act of inunction, exerts a stimulating influence upon the general processes of nutrition.

One of the earliest modern studies in this subject, but one now rarely cited, is that by Sir James Y. Simpson in the *Edinburgh Monthly Journal of Medical Sciences*, for October, 1853. He collected and recorded considerable information from physicians practising in the neighborhood of woollen factories which tended to show that those employed in the more oily processes of woollen manufacture possess a noteworthy immunity from tubercular and scrofulous disorders, and also that they were largely exempt from epidemics of scarlatina, measles, and cholera. He relates a case in which a patient by the external application of oil and with no other change in his food or treatment gained twenty-four pounds in forty-two days, and another case of a child who gained an ounce daily throughout eight weeks of similar treatment. Simpson maintained that the ab-

sorbing power of the skin increased by practice, and that the major part of a wineglassful of warm oil could, with care, be daily rubbed into and absorbed by the skin.

In 1858, Dr. J. B. Thompson, who was, during seventeen years, surgeon to various woollen factories, emphatically corroborated, in the same journal, Simpson's thesis. He reports that in Glasgow and Aberdeen the contrast between cotton and wool workers is attested in favor of the latter, by the factory inspectors and consulting surgeons; and that in Yorkshire the better classes frequently send the delicate members of their families to the woollen mills for the benefit of their health. Of 100 young persons of from 13 to 18 years of age thus employed and under Dr. Thompson's observation, there occurred, in the course of three months, an average individual gain of 5¾ pounds. Of these a *selected* eight exhibited an average increase of 17 pounds each within the time named. None of those under observation lost weight, and one, a phthisical patient, gained 2 pounds.

Sufficient has been said to show that in inunction we possess a means of stimulating nutrition which might with advantage be more frequently used than it is at present.

HÆMOSTATIC ACTION OF FARADIZATION OF THE UTERUS.

Ramas, of Brazil, narrates, in the *Bulletin Général de Thérapeutique*, 1886, No. 1, the case of a patient who, for three months after an abortion, exhibited a scanty but constant uterine hemorrhage. Careful examination revealed no undetached portions of placenta, nor uterine tumor or polyp. The usual methods of treatment by ergotin, liquor ferri, tamponing, and hot injections were without avail.

As a last resort electricity was used, one pole being placed on the abdomen above the symphysis and the other applied directly to the neck of the uterus. The treatment was painful, but the bleeding ceased in five minutes, to return in three days, when a second application caused its permanent cessation.

Apostoli had previously advised a similar use of electricity in metritis and displacements.

REVIEWS.

The Principles and Practice of Surgery. By Frank Hastings Hamilton, A.M., M.D., LL.D. Third edition. 8vo. pp. xxxii. 989. New York: William Wood & Co., 1886.

Dr. Hamilton is too well known to make it necessary for us to copy the list of titles by which he has been honored, or to cite the positions which he has occupied, and which have been honored by him. He is looked up to by the entire profession as one who is entitled to confidence, and whose experience and ability give the weight of authority to his expressed opinions. This new edition of his *System of Surgery* will, therefore, be gladly welcomed by all, and his views on many points eagerly canvassed by those who desire well-considered judgments, coming, as they do, from one whose professional career covers nearly the whole area of modern improvements in surgery.

As a system, however, the work is disappointing, which is inevitable from its narrow limits, but as a record of personal observation it is very valuable. We regard surgical observations given to the world in the later years of one who has had extended opportunities among the most valuable of literary productions. Had Dr. Hamilton restricted himself to writing such a book it would have contained the cream of this one, and enabled him to give at greater length personal experiences, unhampered by the necessity of constant condensation on account of the extended field over which he must necessarily go in completing a systematic work.

But it is time we ceased profitless speculating over what might have been, and said a few words concerning the book as it. It has two grand divisions dealing with general and regional surgery, the first part containing twenty-four, and the second part twenty chapters. In these chapters pretty much the whole realm of surgery is gone over with more or less thoroughness, but with much brevity. Even diseases of the eye, ear, and nose have chapters devoted to them. But, as we have already said, it is on account of its containing the matured opinions of Dr. Hamilton that the work will be studied. Those opinions are given concisely, but with all their author's vigor of expression, and generally the reader is left in no doubt as to the course which Dr. Hamilton himself would pursue in a given case. We regard this feature as a most important one, for while dogmatism in the young and inexperienced surgeon is out of place, and may lead to the adoption of novel and often unwise experiments on the part of his readers, it is fitting that one who has had experience should speak with decision. We have been much interested in the estimates placed upon different forms of amputation, and believe that they may generally be regarded as worthy of full confidence, and that they may be safely followed. The concluding chapters, in which modern methods of dressing wounds are glanced at, are also full of interest, and may be read with much profit.

SOCIETY PROCEEDINGS.

THE AMERICAN OPHTHALMOLOGICAL SOCIETY.

Twenty-second Annual Meeting, held at the Pequot House, New London, Conn., July 21 and 22, 1886.

(Concluded from page 193.)

Dr. B. Alexander Randall, of Philadelphia, reported

TWO CASES OF SEVERE TRAUMATISM OF THE EYE, WITH PARTIAL DISLOCATION OF THE CRYSTALLINE LENS.

In the first case, a man of fifty years, there were three points of rupture of the sclera visible on the upper

surface of the globe, with some tendency to hernia of the contents. The upper half of the lens was in the anterior chamber in front of the iris, the lower half apparently being in nearly the normal position. Its extraction was advised, but delay being asked, the operation was deferred. The lens receded under rest in bed and other appropriate measures. The scleral rupture healed, and in spite of disseminated opacities in the lens and in the vitreous, which prevented at any time a view of the eye-ground, the vision increased to about one-thirtieth of the normal. The patient has since been at work and fairly comfortable, the other eye giving no suggestion of sympathetic trouble. The injured eye shows little tendency to grow worse, although the lens is still luxated backward.

In the second case, patient a boy of twelve years, the lens was less markedly luxated, but the ophthalmoscope showed two rents in the choroid, the larger, a little outside of the macular region, the other close to the temporal margin of the optic disk. In connection with the latter, there was a reddish area of choroid, embracing the upper and inner border of the disk, where the force had apparently been insufficient to rupture the membrane, but had given it a twist, causing its inflammation and subsequent atrophy. The case progressed to an excellent recovery. The vision, which had been lost, improved to $\frac{6}{12 + \text{m}}$, and the accommodation to the extent of some five dioptrics. The choroid rents healed with little but pigmentation to mark their sites. The eye, which had shown a high degree of myopic astigmatism, probably by reason of the dislocation and rotation of the lens, returned to the approximately emmetropic condition of the other eye.

The early and late appearances of the eye-ground were illustrated by colored sketches.

Dr. J. S. Prout, of Brooklyn, read a paper on

BADAL'S OPERATION: LACERATION OF THE INFRATROCHLEAR NERVE FOR THE RELIEF OF GLAUCOMA, ETC., WITH CASES.

In 1882–83, Badal, of Bordeaux, proposed the laceration of the infratrochlear nerve (*nerf nasal externe*, of the French) for the relief of glaucoma accompanied by pain. This nerve is the direct extension of that branch of the ophthalmic, the nasal, from which the eyeball receives its nervous supply. It emerges from the orbit just below the insertion of the pulley of the superior oblique muscle, and supplies the skin at the root and side of the nose and the caruncle, lachrymal sac, and nasal duct. It is readily reached by an incision along the margin of the orbit running from the pulley to the upper margin of the tendon of the orbicularis muscle. It is small, soft, not easily recognized, lies on the periosteum and is to be taken up by a hook with its accompanying vessels and stretched and torn by pulling directly forward. Very little bleeding occurs. Sutures are used to close the wound, which, under ordinary dressing, soon heals. Small painful nodules are sometimes left at the point of rupture. No anæsthetic is needed, as the time required is brief, and there is but little pain except when the nerve is torn. The rationale of the operation is not explained.

In severe cases, when a short delay may be fatal to the eye, he advises that the operation be combined with evacuation of the aqueous tumor. A great advantage of the operation is that, as it does not attack the eyeball, it will be accepted by patients much more willingly than a sclerotomy or an iridectomy. Four of his patients assented to it only on condition that the eyeball should not be touched. When it has failed, he has not had better results from other operations.

Badal, in 1883, reported his results in twenty operations on eighteen patients, nearly all of whom were unpromising for any operation. Pain was relieved at once in ten cases, rapidly in one, gradually in five, not stated in four. Tension was relieved quickly in four, gradually in eight, not relieved in six, not stated in two. Sight had been long lost in seven. It was improved in four, not improved in four, and not stated in five.

Dr. Prout had performed the operation nine times on five patients. All were unpromising cases. In one there was for a time decided improvement of vision; in one there was temporary relief from moderate, and in one from severe pain. One was a case of glaucoma simplex operated on without benefit; another a case of hemorrhagic glaucoma, not benefited. Others have reported much better results. In the *American Journal of Medical Sciences*, for July, 1886, Dr. C. S. Bull refers to a paper by Lagrange, who strongly commends the operation as efficient, especially against the agonizing pain.

Dr. Prout drew the following conclusions: The operation has been shown to deserve further trial, especially in cases unfit for operations on the eyeball; it cannot make matters worse as to the eyes; relief of pain, even if only temporary, is worth procuring at the cost of a slight operation; it is important that cases be recorded so that the value of the method may be ascertained.

Dr. C. S. Bull, of New York, said that in the cases where he had performed the operation for the relief of pain in glaucoma or ciliary neuralgia, while the relief was marked immediately after the operation, it was temporary only, and in every case the pain returned.

Dr. H. Knapp, of New York, read a paper on

ADVANCEMENT OF TENON'S CAPSULE IN STRABISMUS.

This operation was devised by de Wecker five years ago in the following manner. A piece of conjunctiva, five millimetres long and ten millimetres high, is detached from the region of the insertion of the tendon as a centre, leaving a small band near the cornea. Tenon's capsule is now incised near the insertion of the tendon and loosened alongside of and under the muscle. The capsule is then stitched forward by two sutures, entering through the conjunctiva to the capsule at the lower and upper edges of the muscle and coming out in the conjunctiva above and below the cornea. The greater the piece of capsule loosened and stitched forward the greater the effect. If the effect appear too great, the stitches are removed the next day. If not, they are allowed to remain four or five days. De Wecker used capsular advancement for cases of insufficiency to strengthen the weak muscle; for high degrees of strabismus, both convergent and divergent.

Dr. Knapp, during the present summer, had done the operation ten times. His operation differed from that above described in leaving a broader conjunctival flap and in using a third middle suture. His intention was to advance the whole anterior portion of the vertically

folded muscles and the capsule and produce plastic inflammation, which, through subsequent cicatrization, should shorten the parts. The operation was performed in two cases of convergent strabismus due to paralysis of the external rectus. In these cases the operation caused decided improvement. The eyes could be approached to within four millimetres of the outer commissure. The formerly paralyzed external muscle had gained a considerable degree of power. The operation was performed on two cases in which former tenotomies had not overcome the difficulty. The operation was followed by improvement in both cases. In six cases the operation was performed for convergent strabismus of high degree with considerable amblyopia. The results have all been quite good.

In none of the cases has there been any alarming reaction, although there were for some weeks redness and swelling in the region of the advanced capsule. At first, Dr. Knapp had used catgut sutures, but one gave way on one occasion and since then he has employed black silk sutures. Antiseptic precautions were employed in all cases. The speaker preferred advancement of Tenon's capsule to simple advancement of the tendon, because the operation is simpler and attended with less risk. The preservation of the natural attachment exposes the muscle less to inflammation, and there can be no undue retraction in cases of failure. His experience with limited advancement of Tenon's capsule has been quite encouraging.

Dr. George C. Harlan, of Philadelphia, asked whether this is a safe operation? Four or five years ago he did it a number of times and was much pleased with it until he had a case of panophthalmitis. Antiseptic precautions were not employed at that time.

Dr. H. Knapp replied that a year ago he considered it a dangerous operation, but that his views had changed considerably since then. Under antiseptic precautions the danger is much lessened. Where suppuration occurs within the first twenty-four hours, it is certainly the result of infection and not due to the traumatism alone.

Dr. Emil Gruening, of New York, reported

A CASE OF TUMOR OF THE LEFT OCCIPITAL LOBE.

The chief interest of the case lay in the fact that the disease of the brain was localized by the existence of homonymous hemianopsia. Diagrams showing the course of the optic fibres were exhibited. At the autopsy a hard mass was found in the left occipital lobe and the whole cortex of the lobe was destroyed.

Dr. J. S. Prout, of Brooklyn, reported a case of

NEW FORMATION IN THE VITREOUS OF BOTH EYES.

The patient was a man, aged twenty years. He had never had any trouble with the eyes. In the right eye there is a body arching forward. There is no evidence of any relation to the pupilla. The speaker thought that in all probability it was a remnant of the fœtal circulation of the vitreous. In the left eye there was a similar body. Drawings showing the appearance presented were exhibited.

Dr. Edward Jackson, of Philadelphia, presented a *Lens Series for the Refraction Ophthalmoscope*.

Dr. John Green exhibited and described a *New Series of Test Letters*.

Dr. Charles A. Oliver, of Philadelphia, presented a *Set of Metric Test Letters and Words* for determining the amount and range of accommodation. They are made of six sizes of differently arranged words. Each word contains three or four of the seven letters, C D E T O L F Each letter is made in exact conformation with the Snellen basis. The adoption of such a series puts the determination of the acuteness of vision and of accommodation upon a uniform basis.

Dr. S. D. Risley, of Philadelphia, reported

A CASE OF RETINITIS ALBUMINURICA; INDUCED PREMATURE LABOR.

The patient, the wife of a physician, was seen September 24, 1884. She was between the fourth and fifth month of her third pregnancy. She had suffered with headache and giddiness. The urine had been examined a week previously and no albumen found. At this time there was marked disturbance of vision. In a previous pregnancy she had had albuminuria, but no trouble with sight. In the second pregnancy there had been no trouble.

The ophthalmoscope showed albuminuric retinitis of both eyes. The urine contained a large quantity of albumen. After consultation with her husband and Dr. William Goodell, the induction of abortion was advised, but to this the patient positively refused to consent. Finally, after consultation with her clergyman, she consented.

Labor was induced and she was delivered of a fœtus at five months. She then passed into an unconscious condition, in which she remained four days. There were no convulsions; as consciousness gradually returned, evidences of right hemiplegia with aphasia were noted. The quantity of albumen gradually diminished. Six months later the lady was able to return to the office. There were still some traces of aphasia. Vision was greatly improved.

The object in reporting the case was to put on record an additional experience in this problem presenting so many serious considerations.

Dr. B. Alexander Randall exhibited a *Modification of the Loring Ophthalmoscope*, which consisted in adding a series of cylinders from 0.25 D. to 4 D.

Dr. J. A. Andrews, of New York, read a paper on

THE FREQUENT INSTILLATION OF A TWO PER CENT. SOLUTION OF NITRATE OF SILVER IN PURULENT OPHTHALMIA.

He had employed this method in twenty-five cases of gonorrhœal ophthalmia and the eyes were seriously damaged in none of them. The cases were all severe, with much discharge, chemosis, and swelling of the lids. The applications were repeated usually three times a day, sometimes as often as five times per day. The use of the nitrate of silver is graduated to the amount of hyperæmia, and especially to the amount of swelling of the lids. If this is marked, he does not fear to repeat the instillations frequently.

Dr. Russell Murdoch, of Baltimore, exhibited an *Impervious Covering for the Sponge in the Administration of Ether*.

Dr. H. D. Noyes, of New York, presented a paper on the *Measurement of Astigmatism by the Ophthalmometer of Javal and Schiotz*. The instrument is useful for purposes of rapid determination, for confirmation, and in doubtful cases for diagnosis.

Dr. H. D. Noyes also read the following papers by title: *Burns of the Eye by Fulminate of Silver and Fulminate of Mercury*, and *Cases of Foreign Body in the Globe, including Two Cases of Spontaneous Extrusion.*

OFFICERS FOR THE ENSUING YEAR

were elected as follows:

President.—Dr. William F. Norris, of Philadelphia.

Vice-President.—Dr. Hasket Derby, of Boston.

Secretary and Treasurer.—Dr. O. F. Wadsworth, of Boston.

Corresponding Secretary.—Dr. J. S. Prout, of Brooklyn.

The next meeting will be held at the Pequot House, New London, Conn., on the third Wednesday of July, 1887.

Adjourned.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, May 24, 1886.

(Concluded from page 138.)

The President, James T. Whittaker, M.D., in the Chair.

THE SURGERY OF ECHINOCOCCUS.

Dr. Joseph Ransohoff remarked that in the consideration of this part of the subject, the question of diagnosis plays an important *rôle*. A liver riddled with cysts, like the specimen presented, is not, as the surgeon who operated properly remarked, one adapted for surgical interference of the nature resorted to. It is an evidence, possibly, of the limit of our insight into the condition of disease, that a diagnosis which was as brilliantly made as the one in the case reported should not have been absolutely perfect. Had a compound echinococcus been recognized, it is quite certain that the ventrocystorrhaphy would not have been practised. The speaker regretted that the gentlemen who had devoted their time to the diagnosis of this disease had said nothing upon the point of differentiation between the simple and compound cyst. In looking at the specimen and in hearing the history of the case as reported, and particularly the reference to the presence of at least two or more protuberances from the hepatic surface, a suspicion as to the possible existence of a compound cyst might have been aroused. The fact that this suspicion did not arise, even after the larger cyst was aspirated, affords conclusive proof to the speaker that the differential diagnosis between simple and compound cysts is, in the present status of our methods of investigation, not always practicable. Irregularity in the outline of the hepatic margin, a feeling of nodulation, as it were, is probably the most valuable sign of the existence of numerous and distinct cysts.

So far as the treatment of hepatic hydatids is concerned, it is quite certain that in many cases nothing more than aspiration will be called for. It has been established that emptying the contents of the "bladder-worm" usually puts an end to its life history. Nor is the operation of aspirating a hydatid of the liver a dangerous procedure. Death has followed puncture, either from the escape of fluid into the peritoneal cavity or from the puncture of a large hepatic vein as happened in Mr. Bright's case. Such disastrous results are very rare after puncture. In thirty-five out of forty-six cases collected by Murchison, in which it was resorted to, it was successful. Only one case terminated fatally from peritonitis. In ten of the forty-six cases the puncture was followed by suppuration, thus necessitating, as in the case reported, secondary incision of the sac. Of these, eight recovered and two died. When turbidity of the sac contents, or pain, indicates the presence of inflammation, the time for the usefulness of simple puncture has passed. The same is true in cases of endogenous growth of the hydatid tumor, where the removal of the contents of the mother-cyst is not always directly fatal to the younger cysts within. In all of these cases a free opening of the sac is a *sine qua non* of a successful issue. There are many ways of doing this: either by the use of a single trocar of large size, or by the use of two trocars and subsequent incision, or by the preliminary use of a caustic to secure adhesion or by ventrocystorrhaphy may the echinococcus be incised. With a fair knowledge of draining an abdominal wound and with a fair skill in suturing the cyst-wall to the abdominal wound, most cases treated after the last-named method will get well. It is a method successfully resorted to in hepatic and pelvic abscesses, in pancreatic and exceptional cases of ovarian cyst, and has been largely practised in hydatids of the liver in Germany. Even had a more accurate diagnosis been possible in the case reported, any method would in all probability have failed. The one which would have promised most is that by electrolysis. It is known that in simple cysts and in young subjects the use of electricity has been beneficial. In cases of compound hydatid it appears particularly applicable in view of the fact that without it or multiple aspiration a successful surgical interference can hardly be hoped for.

Dr. P. S. Conner remarked that he could not decide where the last speaker could have gotten his information regarding the appearance of the tumor. The tumor had no such nodular feel as has just been described. There was, as stated before, one large round mass and a smaller round mass beside it; there was nothing to indicate at the time of the operation that the cysts were so numerous or that the liver was so filled with them, and it would have been a matter of impossibility to have determined at that time the existence of more than two cysts. There was one large rounded mass which had been emptied more than once and had refilled, and a smaller one near it. As stated in his former remarks, this was not a case for operation; but this conclusion could be arrived at only after the post-mortem examination.

Two facts are very clear in the history of hydatid disease of the liver. One is that there is an almost absolute certainty of its ending in death—in the course of four or five years at the outside, as a rule; and the other is that medical treatment is of no value. The disease, if it is to be influenced at all in its course, must be so influenced by active interference with instruments. There is really no new operation for the disease, for all our present operations are but the old operations or modifications of them. It is forty years since an Iceland physician recommended the use of electricity, and tapping is yet older. All operations at present have for their object the destruction of the hydatid, so that the fluid may be absorbed and perhaps calcification of the cyst take place, or else that suppuration may occur and per-

mit the conversion of the cyst into an abscess, to be treated like any other abscess of the organ; or, lastly, the removal of the cyst in mass. Aspiration is by no means an operation devoid of danger, and it certainly is not one to be recommended more than twice or, at most, three times in the treatment of a given case. Indeed, we may safely declare that as soon as suppuration occurs, the use of the aspirator needle is positively contraindicated. It has been shown more than once that even when an excessively small quantity of this hydatid fluid has found its way into the peritoneal cavity it has excited violent inflammation and caused death, but not invariably or necessarily so. It has further been found that after tappings, sometimes after the first, frequently after the second, very frequently after the third, and always after repeated tappings, suppuration occurs. It has, therefore, been positively stated that aspiration should be practised only once, and that repeated puncture should never be made. So far as danger to life is concerned, it has been shown that repeated punctures are more dangerous than a single puncture kept open, especially when such is made with a large trocar, and drainage is maintained through a large tube. At the present time, aside from aspiration, recourse is had almost invariably to opening the cyst, and that either at a single sitting or at two sittings, adhesion of the peritoneal surfaces being secured before the cyst is cut into. The old Récamier treatment by caustic applications that was so likely to cause peritonitis, and so often failed to secure adhesions, may certainly be regarded as a thing of the past. Incision of the cyst is an operation fifty years old or more, and it was repeatedly tried and abandoned on account of the excessive mortality which attended it in what is now known as the preantiseptic period. Lehotsky has recently reported twenty-five cases, four coming under his own observation, death occurring only four times, in three of which instances the fatal termination could not fairly be attributed to the operation. But even if, as has been declared by Niessen, the mortality of the operation reaches one-third, still the mortality is so much less than that which attends the do-nothing treatment, that it demands consideration.

If the cyst lies immediately under the surface of the liver, it is an easy thing to determine what is to be done; but if it lies at some depth, the decision is more difficult. Still, there is only one thing to be done, and that is to go deeper until the cyst is reached. If there has been effusion of the cyst contents into the pleural cavity, the ordinary free operation for empyema must be made.

In conclusion, Dr. Conner said, there is so great a mortality attending the let-alone treatment (and the risk of aspiration is by no means a slight one) that there can be no question as to the propriety of making an incision into the cyst. Cases presenting peculiarities may demand special treatment—*e. g.*, removal in mass or ligation of the pedicle and cutting away the major part of the sac. The peculiarities may even be such as to add seriously to the difficulties of diagnosis. In one of Pean's cases in which the tumor projected directly forward in mass as large as a child's head, it rested on the abdominal aorta so as to receive an impulse from that vessel, showing that it may be possible for a liver hydatid to be mistaken for an abdominal aneurism.

ECHINOCOCCUS OF THE EYE.

Dr. David de Beck remarked that the interest the disease might have in ophthalmology was purely clinical. About forty cases of echinococcus of the eye have been reported; all these by French and German writers, none by Americans. The echinococcus in this region is distinguished from the cysticercus in that the former cyst is always found in the orbit, whereas the latter usually occurs under some of the membranes of the eye and is termed subconjunctival, etc. Only three unquestioned cases of cysticercus of the interior of the eye have been reported. In most cases of this affection the diagnosis has been made after the operation for its removal.

Dr. Whittaker, in concluding the discussion, said that as the hour for adjournment had arrived he would make but two or three remarks. He had already spoken of the rarity of the disease in this country, with the reservation that undiagnosticated cases recognized on autopsy are not reported. One of our hospital pathologists here said that he had seen three such cases in this city. Failure to recognize echinococcus is not confined to this city. Thierfelder observes that but seven of thirteen cases were discovered during life at Rostock, and Bröcke states that but thirteen of twenty-two cases were recognized at the Berlin Charité. Madelung maintains that only about one-third of the cases are generally diagnosticated during life. It must be remembered, however, that most of these cases occurred before the days of aspiration. The use of the aspirator simplifies the diagnosis immeasurably.

He thought that for practical purposes the chemical is superior to the microscopic test, as it is the exception, and not the rule, to find either scolices, hooklets, or characteristic fragments of membrane in the specimens examined.

It was his opinion that most cases outside of Iceland were not contracted directly from dogs, as there is nowhere else such intimate relation with dogs. Besides, dogs are not so frequently affected with tænia as is commonly believed. Krabbe, of Copenhagen, examined the bodies of 500 dogs with reference to this point and found but 0.6 per cent. affected with tænia echinococcus. König intimates that the use of the *album grecum*, the dried feces of dogs, as a medicine, by the common people of Mecklenberg, might account for the frequency of the disease in that country. Paullini, in 1699, wrote a book on the virtue of excrement in the cure of all disease. But most of the druggists respond to the call for the "*witten entzian*," as it is called, with magnesia, and Madelung observes that when the real *album grecum* is furnished, it is old desiccated matter long exposed to the elements, whereby all organic matter is thoroughly destroyed.

The view that most cases come from sheep, by the ingestion, not of the ova, but of the cysts themselves in the liver of this animal, is supported by the frequency of the disease in Victoria, where the proportion of sheep to human beings is 100 to 1. Victoria ranks next to Iceland in the frequency of deaths from this disease.

Wechselmann, of Rostock, has made an intensely interesting contribution to the subject of the effects of bile upon echinococcus cysts, based upon the reports of twenty-five cases in which this accident occurred. Grünberg and Löbaker had expressed the opinion that

the prognosis was thereby rendered more grave, but wider experience has shown that bile has rather a favorable effect through its antiseptic properties. Uterhart observed that the clear fluid of echinococcus usually becomes opaque in twenty-four and decomposed in thirty-six hours, while, when mixed with bile it remains pure and without odor for six days, and begins to give the odor of decomposition only on the seventh day. Kussmaul, likewise, remarks upon the antiseptic effect of bile upon pus, and Bartels used diluted ox-gall successfully as an antiseptic in a case of peripleuritic abscess. But in none of Wechselmann's cases could it be said that the bile exercised anything like a curative influence. The compound character of the present case could not have been recognized by any possibility *intra vitam*. The liver, as stated, was enlarged uniformly, and was by no means as large as many an amyloid liver. The speaker had seen many cases of abscess in which the liver was not larger than in this case. In fact, the whole circumference of this liver, as stated upon the exhibition of the specimen to the Academy a few weeks ago, was but twenty-three inches. The greatest diameters were eleven to fourteen inches. When pathologists teach us how to distinguish in life between endogenous and exogenous echinococcus cysts, we shall be better able to recognize compound cysts. He insisted that these cysts should be called compound, not multilocular. A multilocular echinococcus, as has been sufficiently emphasized this evening, is a very different condition. It occurs so extremely rarely—but one case in one hundred and eighty—as to have insignificant practical value.

CORRESPONDENCE.

FARADIZATION IN EXTRAUTERINE PREGNANCY.

To the Editor of The Medical News,

Sir: But for several palpable inaccuracies in the statements of Mr. Lawson Tait given in The Medical News of August 14, 1886, and the expressed wishes of medical friends, I should have allowed his letter to you to have remained unanswered, as a journalistic contest is not at all to my taste. With what Mr. Tait says of me personally, I have nothing to do, but his remarks involve the diagnostic ability of many who stand high in the ranks of American gynecologists. He appears to think that an extrauterine pregnancy cannot be detected in the early stages of its formation, and that all those who claim to have done so, and to have destroyed the fœtus by faradization, have been in error. He still insists that needles are used in the fœticidal act, although assured that in no instance has electrolysis or galvanopuncture been employed in this country. Mr. Tait should bear in mind that faradization has been resorted to in America in cases where the fœtal development was computed at from eight weeks to more than four months; whereas, in his twenty-five reported cases of ligation and incision, rupture took place so early that he was able to find the fœtus in only two of them. He calls these "*primary*" laparotomies, and finds fault with me for stating that there had been but 19 of this class, with 15 deaths, when he had himself saved 24 out of 25. I was slightly in error here, for two cases reported as having been saved under Dr. August Martin, of Berlin, have, by a paper directly received within a few days, been shown not to belong to the primary list, one fœtus having been carried twelve years, and the other three months. This brings me back to the original record searched out by Prof. Litzmann, of Kiel, in which are 17 cases and 2 recoveries.

What is a *primary* laparotomy in cases of extrauterine pregnancy? Certainly not such as Mr. Tait would make it appear. The classification into *primary* and *secondary* is much older than this operation of his, and has a very decided bearing upon the prognosis of an extrauterine case, the first having for years been the opprobrium of obstetrical surgery, while the second has been many times performed with success. The *primary* operation is undertaken in the interest of two lives, and the fœtus must not only be living, but viable. The *secondary* is performed a sufficient time after the death of the fœtus to effect the changes in the vascular supply of the placenta which follow upon the cessation of its functional activity, and thus secure its exfoliation without hemorrhage. Mr. Tait says that he has performed 7 of the primary laparotomies recognized as such in the obstetrical works of Playfair and others, and has saved 6 of the women, and that 3 of the children are now living and growing up. I can find but one of these reported as yet, and hope he will make a full statement of his method of operating upon the six that recovered, so that others may profit thereby and enter upon a field of surgery in which he alone shines as a victor, having saved thrice as many out of seven women as the rest of the world has out of seventeen.

Possibly Mr. Tait may make an exception as to the diagnostic acumen of Prof. T. G. Thomas, one of the operators referred to in his letter, when he learns that the little fœtus destroyed by him has more recently escaped by the patient's rectum. For one, I should be as much inclined to trust the diagnostic ability of Dr. Reeve, of Dayton, Dr. Garrigues, of New York, and others referred to by him, in cases such as they claim to have operated upon, as I would that of Mr. Tait himself, who is by no means infallible, although very expert. If the rectal method of Simon was requisite in a difficult case, I should have much more faith in the skilful little hand of a Morisani than in his. If Dr. M——, of Buffalo, made a mistake in one of his cases, what right has *he* to claim that he must have done so in his other five. If a surgeon, ordinarily skilful, plunges a trocar into a cancerous tumor of the liver, in the belief that he is about to open a hydatid cyst, must it be claimed that he is never to be able to make a true differential diagnosis? It is a mistake to claim that a woman has no symptoms that would direct an obstetrician to the discovery of an extrauterine pregnancy. She may not have had in the twenty-three cases in which Mr. Tait did not find any fœtus, but at a later period she has feelings that, if expressed, would, in many instances, lead a man of skill to recognize her abnormal state. This, I am assured of, would have been the case in a lady who recently died from rupture of a fœtal cyst in this city, had she spoken of her sensations in time. The obstetrical surgeons of this country, especially those who have had a large obstetrical experience, are by no means defective in skill when it becomes necessary to decide upon the nature of an abnormal growth

within the pelvis. Mr. Tait will admit the fact that a Fallopian fœtal cyst, when it has not ruptured early, will often gravitate into the Douglas cul-de-sac as it becomes heavier, provided it be located near enough to the distal end of the tube to admit of it. In such an event the test of *ballottement* may be and has been used, and the fœtus has been removed through the vagina by incision. It is in this location that the fœtus has been destroyed by faradization *without needles*.

Robert P. Harris.

329 South Twelfth St., Philadelphia,
August 16, 1886.

To the Editor of The Medical News,

Sir: In your issue of Aug. 14, 1886, I notice a letter from Mr. Lawson Tait in which he alludes to a specialist in Buffalo, evidently meaning the writer, in the course of which he throws doubt on my diagnosis of "six successful cases of electrolytic treatment of ectopic gestation," which he says I have repeatedly stated that I have had.

Mr. Tait does not make his assertion as coming second-hand, but as a generally accepted fact, patent to all. As I never saw Mr. Tait, though I hope to have that pleasure some day, he must refer to my written statements.

The only article on this subject I have ever published was in The Medical News for July 11, 1885, in which I reported "four (not six) cases of extrauterine pregnancy."

One of these cases was in the practice of Prof. E. V. Stoddard, of Rochester, and was never seen by me, as I distinctly state. Of the three which came under my own notice, the first was suffering from rupture of the sac into the broad ligament when I first saw her. I concluded that the child was dead and that the woman would probably recover, but "in order to make sure of the death of the child I advised that a current of electricity should be passed through the swelling every day for a week. This treatment was carried out and the prognosis fully justified." The second case went to term with a living child, which was removed by laparotomy after its death. One other case remains, and that I shall always believe was an undoubted case of tubal pregnancy, cured not by electrolysis but by electric fœticide.

In my published record, then, I have never claimed to have seen but one successful case of the electrical treatment of ectopic gestation.

Of the fifth case, Mr. Tait could have been cognizant only by hearsay, as I never have published a word of it. The woman had a tumor at the side of the uterus, with certain indefinite symptoms, which I thought might indicate an extrauterine gestation. I used electricity after she had refused laparotomy, and she got better but passed out of my sight. I was never sure of this diagnosis and never reported the case or considered it of any value as evidence—as I did not know its termination.

The sixth case to which he refers, and which he says I was made to discover was nothing of the kind, was as follows:

The woman came into the hospital to be delivered, firmly believing that she was pregnant. As labor did not come on, I was asked to see her and diagnosticated a tumor attached to the uterus and no uterine gestation. Dr. R. S. Sutton, who happened to be visiting me, agreed in this opinion, but was not prepared, in a hurried examination, to diagnosticate the character of the tumor, being inclined to the belief that it was a fibroid. After keeping her in my ward for a while and carefully examining her under ether, exploring the uterus with my finger and questioning her repeatedly, I came to the conclusion that the tumor was connected with the tube, and that it *might* be a case of tubal pregnancy. I, therefore, applied the battery several times, after which she got up, professing to feel much better, and at her urgent request I sent her to her home in the country without ever having been entirely satisfied with my diagnosis. Now what was the result? Soon her pain returned, and my friend, Dr. W. G. Wylie, of New York, was called to see her. He wrote me, and I gave him my view of the case, stating *positively* that it was one of extrauterine pregnancy. This I did, as I had received only the day before a letter from the patient in which she stated that her physicians (two) had both detected undoubted fœtal movements in the tumor, which would, of course, make the diagnosis conclusive. This, as it turned out, was not true, but I thought it was when I wrote Dr. Wylie. Dr. Wylie did abdominal section and found a "cyst of the Fallopian tube" with very thick walls "containing three pints of clear, straw-colored fluid" (*American Journal of Obstetrics*, January, 1886, p. 75).

What was the cause of the cyst? May it not have been a tube dilated by an ectopic gestation, and may I not have been right after all? I maintain that this is within the bounds of possibility, as it is well known that a fœtus, when destroyed early in pregnancy, may be entirely absorbed. In support of this, I have in my possession an ovum which I removed intact from the uterus, in which no trace of the fœtus could be found, though the placental remains were there and a trace of the cord.

I have seen several other cases of supposed ectopic gestation, but in none of them have I ever claimed, verbally or otherwise, to have killed the fœtus by electricity. So the six cases are narrowed down to one. If Mr. Tait would give a little more time to that "patient investigation of statistics" which he so much admires in Dr. Harris, he would not so frequently lay himself open to adverse criticism.

One word more. Mr. Tait states that "it is perfectly impossible to recognize them [cases of extrauterine pregnancy] before rupture has taken place." Perhaps, if he would study the symptomatology of the accident, follow the American method, and examine his patients in the normal position, and spend a little more time in his examinations than he confessedly gives, he might do better in the matter of diagnosis. Certainly, the Americans, to say nothing of other nationalities who have claimed to have succeeded in making the diagnosis, are some of them so eminent and so skilful that their combined positive testimony must much more than outweigh the unsupported negative opinion of any one man, no matter how distinguished he may be. I will only mention, among others, the names of Emmet, Thomas, Lusk, Mundé, B. Emmet, and Garrigues, in New York City alone. Almost the entire medical world is against Mr. Tait when he says

that "they give rise to no symptoms at all until rupture has taken place." Scores of cases might be cited to prove the contrary, but I will not take up any more space, as Dr. Harris will, doubtless, have something to say on this point.

Matthew D. Mann.

Buffalo, August 15, 1886

To the Editor of The Medical News,

Sir: The gist of the question as to the value of faradization in extrauterine pregnancy depends largely upon one point in diagnosis. Mr. Tait says, in his letter in The News of this date, that *no* symptoms of trouble arise until *after* rupture has taken place in tubal pregnancy, and that women do not complain until this deplorable event has occurred. Further on, he talks of "electrolysis" by faradization, and mixes "galvanic needles" just as unnecessarily with the subject. Mr. Tait positively asserts that electricity "as a method of *preventing* rupture is absurd." (Italics mine.) This is just where Mr. Tait shows his lack of "practical experience" on this point.

During the last fifteen years I have, through the kindness of professional friends, seen nearly a score of supposed extrauterine pregnancies, most of which I could not accept as such, and the subsequent history of which sustained my view. I have, however, personally treated five cases of undoubted extrauterine pregnancy, in which faradization successfully *arrested* the gestation and *prevented* rupture of the tube. In an additional case of collapse believed to be from rupture of the tube, faradism arrested the hemorrhage due to "torn placental vessels" and the lady recovered. This case I saw only *after* the rupture. Operation was peremptorily refused. The history was clear in the opinion of three physicians, two of whom were of large obstetric experience, and the result here was certainly not "a farce." Had the gestation been arrested sooner by electricity, severe hemorrhage from the placental vessels could not have occurred. The main object is to interfere in the earliest possible stage and before the placenta is much developed; hence, the fœtus *is* the source of danger. Destroy the fœtus, and the placental growth is stopped. I do not hesitate to say that in these cases the diagnosis was both correctly and easily made. The smallest tumor was as large as a walnut and in the other cases the tumor was somewhat larger; the signs of pregnancy were undoubted, yet the uterus was empty. We have in America obstetricians competent to diagnosticate extrauterine pregnancy, and this prior to rupture of the tube, for our women *do* suffer before that calamity overtakes them, and this could be verified did space permit reports. This kind of skill, though not so showy as operative work, yet has its place.

That faradization, properly employed, will destroy an ectopic pregnancy, and that galvanism will thereafter produce absorption of the then foreign body, is beyond cavil; and that fœticide is, in such cases, morally right and humane, because it is the only certain method of saving maternal life, cannot be honestly controverted, Mr. Tait's opinion to the contrary notwithstanding.

Very respectfully,

Wm. R. D. Blackwood, M.D.,
Neurologist and Electrician, Presbyterian Hospital.

Philadelphia, August 14, 1886.

NEWS ITEMS.

Surgeon-Generalship of the Army.—A special despatch to the *New York Tribune*, dated Washington, August 17, states that the retirement of Surgeon-General Murray of the Army, and the departure of President Cleveland before filling the vacancy, tend to make "Army politics" somewhat active. Under the law the President may select a surgeon-general from among all the officers of the medical corps of the army, which contains a large number of ambitious and able men. If seniority of rank and service should govern, of course Colonel J. H. Baxter, the Acting Surgeon-General, would succeed to the vacancy, but nearly a score of men whose names are lower on the list are active competitors for the place. Among them are Surgeon Sutherland, whose commission as colonel dates from 1876; Surgeon Bailey, whose colonel's commission bears the date of January 30, 1883; Colonel Glover Perin, Assistant Surgeon-General, whose commission dates from July 2, 1884, and who will reach the age for retirement on November 17, 1887, and Thomas A. McParlin, whose colonel's commission is dated September 10, 1875, and who will reach the age of sixty-four on July 16, 1889.

Among officers below the grade of colonel there are several candidates whose friends hope for their success. One of them is Lieutenant-Colonel Joseph R. Smith, who was appointed an assistant surgeon in 1854 and was promoted to the rank of full surgeon with the grade of major in 1862. His commission as lieutenant-colonel bears date January 9, 1885. Colonel Smith stands high in his corps and it is understood that influential friends are urging his promotion. Another officer who has strong backing is Surgeon Basil Norris, whose commission as lieutenant-colonel was issued December 14, 1882. The friends of Surgeon John S. Billings are pressing his claims with vigor. He received his commission as major in 1876. Besides the candidates above mentioned, there are Surgeons Page, Moore, McKee, Huntingdon, and several others, and it is probable that the delay in making the appointment will bring several more candidates forward by the time the President returns from his summer vacation. It is understood that the Secretary of War has recommended the promotion of acting Surgeon-General Baxter.

Professor Grashey of Würzburg has been called to Munich as the successor of the late lamented Professor von Gudden.

The Sixth International Congress of Hygiene and Demography will meet in Vienna, in September, 1887, instead of 1886, as originally proposed. Among other subjects the precautions, international or others, to be taken against the propagation of contagious diseases by rags; and the international regulations to be adopted against the adulteration of food products, will occupy prominent places in the discussions. Those who are interested are requested to suggest other subjects, addressing Prof. de Gruber, Brunn, near Vienna.

Dr. Wm. C. Dabney, of Charlottesville, Va., has been elected to the Chair of Practice of Medicine, Obstetrics, and Medical Jurisprudence, in the Medical Department of the University of Virginia.

THE AMERICAN DERMATOLOGICAL ASSOCIATION will hold its tenth annual meeting at Greenwich, Connecticut, on August 25, 26, 27. The president for this year is Dr. Edward Wigglesworth, of Boston.

THE LONDON HOSPITAL SUNDAY FUND amounts this year to over one hundred and eighty thousand dollars, being $25,000 more than it was last year.

SIR BALTHAZAR W. FOSTER.—The Queen, upon the recommendation of Mr. Gladstone, upon his retirement from office, has conferred the honor of knighthood upon Dr. B. W. Foster, President of the Council of the British Medical Association and late Member of Parliament for Chester.

DR. JAMES R. CHADWICK, of Boston, represented Harvard University at the Heidelberg Quinque-centennial.

A NOVEL PROFESSORSHIP is the establishment of a Chair of the Chemistry of Food in the University of Berlin. The incumbent will rank as professor extraordinary.

THE CHOLERA.—A cable dispatch from London, dated August 16th, says:

The Austro-Hungarian cholera returns for to-day are: Trieste, 16 new cases and 3 deaths; Flume, 3 new cases, no deaths. The Italian reports are: Barletta, 60 new cases, 30 deaths; Ruvo di Puglia, 21 new cases, 7 deaths; Bologna, 13 new cases, 5 deaths; Padua, 41 new cases, 4 deaths; Treviso, 18 new cases, 10 deaths; Verona, 6 new cases, 2 deaths; Legnago, 12 new cases, 3 deaths; Venice, 7 new cases, 2 deaths; Bisceglia, 13 new cases, 2 deaths; Acquaviva, 14 new cases, 3 deaths.

The geographical area affected by cholera exhibits the capricious behavior of this mysterious disease. Thus it is worst in Barletta, which is far away to the South, where the coast district between Monte Gargano and Brindisi is more or less affected. Thence it makes a clear leap of 300 miles to Lavenna and Bologna; then turns northward, extending, though in a less virulent form, throughout Venetia, including the island of Chioggia, and reaching as far east as Verona and as far north as Castel Franco, at the foot of the Alps. It is a noteworthy fact that the places most seriously threatened lie in the centre or on the edge of marshy plains formed by the alluvial deposits of rivers or the silting of the sea, which always induce more or less malaria at this season of year.

THE late DR. MOXON had a mind which habitually saw the humorous side of all things; every event and every statement seemed to be present to his mind in two aspects, and many of his sayings would be well worth preserving. His description of some of the aspects of the teetotal movement as "intemperate abstinence," and his definition of syphilis as "a fever diluted with time," are instances in point. As a teacher of materia medica, the shafts of his satire were frequently directed against inert drugs and obsolete formulæ; of elm-bark, for instance, he vouchsafed no further information than that the wood was "good for making coffins." His grave discussion of the motto of Guy's Hospital, "Dare quam accipere," whether it had not reference to the stock mixtures, not only raised laughter at the time, but served a useful purpose by drawing attention to the fact that some of these old-fashioned remedies were horribly nauseous, and probably not very active.

NOTES AND QUERIES.

POISONING BY OXALIC ACID USED LOCALLY.

A MEDICAL friend from the country has just informed me of a case which he was called upon to treat: a woman, who applied a quantity of oxalic acid, in substance, to the vagina, or os uteri, and when seen by the doctor she was suffering from both local and constitutional poisonous effects of the application. What would be the proper treatment in such a case? What would be the best remedies to eliminate the poison from the system?

L. C. H.

COLUMBUS, OHIO, August 12, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM AUGUST 10 TO AUGUST 16, 1886.

MAGRUDER, DAVID L., *Lieutenant-Colonel.*—Promoted to Surgeon, with rank of Colonel, July 26, 1886, vice Brown, retired.

ALEXANDER, CHAS. F., *Major.*—Promoted to Surgeon, with rank of Lieutenant-Colonel, July 26, 1886, vice Magruder, promoted.

CRONKHITE, HENRY M., *Captain and Assistant Surgeon.*—To be Surgeon, with the rank of Major, July 26, 1886, vice Alexander, promoted.

WALKER, FREEMAN V., of Georgia.—Appointed Assistant Surgeon, July 27, 1886, vice Cronkhite, promoted.

STERNBERG, GEO. M., *Major and Surgeon.*—Granted leave of absence for fifteen days.—*S. O. 186, A. G. O.*, August 12, 1886.

TREMAINE, W. S., *Major and Surgeon.*—Sick leave further extended six months.—*S. O. 187, A. G. O.*, August 13, 1886.

HOPKINS, W. E., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Lowell, Arizona Territory, to Angel Island, California, for duty as Post Surgeon.—*S. O. 61, Division of the Pacific*, August 6, 1886.

MASON, CHAS. F., *First Lieutenant and Assistant Surgeon* (recently appointed).—To report by letter to the Commanding General of the Department of the East for assignment to duty.—*S. O. 187, A. G. O.*, August 13, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 14, 1886.

WALTON, THOMAS C., *Surgeon.*—To remain on present duty until September 1, 1886.

WHITE, C. H., *Surgeon.*—To remain on present duty until August 21, 1887.

RUSH, C. W., *Passed Assistant Surgeon.*—Authorized to delay ten days, under orders to Sitka, Alaska.

LUMSDEN, G. P., *Passed Assistant Surgeon.*—Ordered to hospital, Mare Island, California.

BALDWIN, L. B., *Passed Assistant Surgeon.*—Ordered to the U. S. S. "Ranger."

NEILSON, J. L., *Surgeon.*—Detached from the U. S. S. "Ranger," proceed home and wait orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING AUGUST 14, 1886.

CARTER, H. R., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, August 12, 1886.

GLENMAN, A. H., *Assistant Surgeon.*—Granted leave of absence for thirty days, August 9, 1886. To examination for promotion, August 12, 1886.

PETTUS, W. J., *Assistant Surgeon.*—When relieved at Savannah, Ga., to rejoin station at New Orleans, August 13, 1886.

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

SURGICAL LESIONS OF THE BRAIN AND ITS ENVELOPES.

A Lecture delivered at the College of Physicians and Surgeons, Chicago, Ill.

BY NICHOLAS SENN, M.D.,

OF MILWAUKEE, PROFESSOR OF PRINCIPLES AND PRACTICE OF SURGERY AND OF CLINICAL SURGERY IN THE COLLEGE.

GENTLEMEN: I shall call your attention to-day to an extremely important subject, the surgical diseases of the brain and its envelopes—lesions attributable directly to traumatism and the consecutive lesions following injury to the skull, the brain, and its envelopes. You will recognize the importance of secondary lesions of the envelopes if I call your attention to the fact that any lesion of the meninges is liable to extend to the brain substance proper by continuity of the inflammatory process, or may prove fatal by compression of the brain by the products of inflammation, which takes place on account of the unyielding character of the cranial vault. I wish you to remember that wounds of the brain, both incised and contused, may heal and cicatrize in a manner similar to that noted after injuries of other organs; in this respect we differ with the older authorities, who believed that injuries of the brain substance proper were incapable of repair; a loss of continuity in the brain substance proper which does not suspend an essential function may be followed by cicatrization and complete repair, and the organ may be restored to its functional integrity, provided, however, that the injury is unattended by consecutive traumatic infection, and consequently unattended by secondary inflammatory lesions; in other words, the loss of substance is replaced by a reconstructive process from the normal histological elements of the brain initiated by the traumatism.

About thirty years ago an eminent German physiologist (Wagner) made a series of experiments to ascertain the capacity of the brain to repair itself, and with another view to ascertain the physiological function of different portions of the brain. He found on removing sections of different portions of the organ that the operation, as a rule, was not followed by a process of destructive inflammation—that cicatrization was established in the same manner as when the injury is inflicted upon some other organ of less physiological importance. He not only found that wounds of the brain healed, but at the point of injury loss of brain substance was liable to occur as a result of consecutive cicatricial contraction without causing serious functional impairment. He ascertained this fact by a series of experiments, weighing different portions of the brain before and after the injury so accurately as to find the fraction of a milligramme of difference. Again, you will remember the classical case reported by Bigelow, of Boston, in 1855, where a crowbar passed through the brain substance, entering the skull from below upward, producing not only a great loss of brain substance, but contusion of the adjacent portions—a condition which must of necessity result in extensive cicatricial contraction during the reparative process. If, as was here the case, no loss of function occurred after the wound had healed, you can readily imagine that even an extensive loss of brain tissue does not necessarily interfere with the normal physiological functions of the brain if the injury is not followed by a secondary destructive process.

In introducing the subject of surgical lesions of the brain as they follow injuries of the cranium or its contents, it is necessary for a moment to direct your attention to those rare affections which occasionally follow incomplete fractures of the skull. By such an injury I mean a contusion affecting the cancellated structure between the external and internal table of the cranial bones; an indentation of one or more of the cranial bones by external violence, which is subsequently restored by means of the elasticity of the bones, assisted by the intracranial pressure, but resulting in compression of the cancellated tissue between the tables. It is a form of incomplete fracture as we observe it in the skull, the result of compression, which produces a condensation of the cancellated tissue, but does not affect the external or the internal table, an injury not recognizable by external signs, because the external table is smooth, while the internal table has a sufficient amount of elasticity to restore the normal relation of the parts though the diploë be crushed. It is a partial crushing of the diploëic structure, the result of force applied from without, as I have previously informed you, and which may temporarily indent the skull to the extent of even half an inch without producing fracture of the compact layers of the bone. This variety of fracture can only be recognized by evidences resulting from extravasation of blood, and ecchymosis at the point of injury, and by the immediate effects of the injury upon the functions of the brain. Its existence is also suggested a certain length of time after the injury has been received by a consecutive formative periostitis—a periostitis induced directly by the traumatism, resulting in the production of new bone, provided no infection has taken place at the seat of injury.

It is important to remember this form of injury from the fact that occasionally we meet with cases of injury of the cranial bones subsequently followed by serious brain disease, the secondary brain lesion being the direct result of the local injury in the diploë; an injury producing, in the first place, a laceration of the small veins in the diploë followed by thrombosis, the thrombus acting as a favorable culture soil for germs that may be accidentally introduced from a slight abrasion, resulting in an osteomyelitis—the osteomyelitis, again, extending by means of the consecutive thrombophlebitis to the subjacent meninges and to the brain itself. These remarks should teach you simply this fact: that all in-

juries of the skull, even when apparently slight, should put you on your guard with reference to the management of the case. Even a comparatively slight contusion of the cranial vault may be followed by a complexus of symptoms indicative of a grave central lesion. It is on this account that such injuries, slight as they may appear, should receive most careful treatment. This should have for its aim the prevention of secondary lesions; consequently, it must be directed toward the prevention of the inflammatory processes in the bone, and their extension to the brain and its envelopes. Rest in the elevated position, and cold applications are the measures upon which you rely, in the first place, to prevent an undue local inflammation, and if evidences of osteomyelitis appear, as evidenced by the appearance of fever, pain at the seat of injury, local œdema, then resort to early operative measures to reach the inflammatory focus, etc., before the infective thrombophlebitis has had time to extend to the subjacent brain tissue.

In speaking of traumatic meningitis, it is necessary to recognize two distinct varieties, the primary and the secondary. The classification introduced as early as the time of Ambrose Paré, and since recognized by all surgical authors, is this: A primary meningitis is that which is produced directly by traumatism following an injury within twenty-four to seventy-two hours; a secondary meningitis, on the other hand, is an inflammation of the meninges occurring an indefinite period of time after the local injury, but where the primary injury bears a direct etiological relation to the secondary lesion. When I call your attention to the causes which produce these two varieties, the distinction will appear plain to you. By a primary meningitis, I mean that form which results directly from an absorption of the products of putrefaction at the point of injury; a meningitis following a compound fracture of the skull, for instance, exposing the dura mater directly to infection. If the dura mater is exposed directly to the products of putrefaction, the septic germs penetrate the substance of the meninx proper, and the inflammation extends in a central direction *pari passu* with the invasion of the primary cause. The process begins at the point of injury, extends in all directions from a common central point toward the circumference, and in a central direction, by continuity and contiguity. By extension by continuity, I mean that the infective principle pervades the tissues of the dura mater, extending deeper and deeper, involving the subjacent envelopes, the arachnoid, and pia mater, and producing an inflammatory process in these membranes resembling in every respect the character of the inflammation in the dura mater, constituting the lepto-meningitis of recent pathologists. Again, extension takes place by contiguity of tissue, the pia mater being in close contact with the cortical layer of the brain the process extends from the meninges to the brain, so that we have a meningitis involving all of the meninges accompanied with an encephalitis, or a meningo-encephalitis, meaning an inflammation of all the meninges of the brain with inflammation of the subjacent brain tissue. Consequently, we again assert that, as in any other locality, a destructive inflammation of the meninges of the brain and the subjacent brain tissue following an injury is always to be considered as a direct result of traumatic infection or traumatism combined with infection from some antecedent pathological product. *No infection, no meningitis. No infection, no encephalitis.*

By a primary meningitis, then, we mean that which is induced by primary infection. This is important in a practical sense, inasmuch as it will again remind you of the importance of resorting to thorough local disinfection in all cases of compound fracture of the skull in order to obviate a consecutive meningitis. It should impress upon you again the fact that when a fracture is once compound you necessarily make it more compound in the attempt to secure free drainage. If you have an indented fracture which will not permit of free drainage between the fragments, it is necessary to expose the meninges by removing portions of the detached bone, and if the bone is not detached, you should enlarge the opening by means of a bone forceps or chisel, not only for the purpose of resorting to thorough primary disinfection underneath the fractured bone, but also for the purpose of insuring free drainage subsequently. We observe the same rule in these instances as we do in all other serous cavities. An infective agent, once introduced, is beyond our control if it has permeated the tissues beneath; consequently, the larger the opening the freer the drainage; the better the access to the infected district, for the application of disinfecting agents, the better the results.

By a secondary meningitis of a traumatic origin, I mean that which may follow an injury of the skull or the superimposed soft tissues at some indefinite subsequent time.

Premising, again, that, as in cases of primary meningitis, the secondary form is due to the same infective cause, but that the infection has remained for a certain time latent, local, and has extended subsequently by the development of certain well-defined, local, pathological conditions—as, for instance, suppurative osteomyelitis, a condition to which I have previously alluded in cases of contusion of the cranial bones, as being the result of the introduction of specific germs which we have learned produce suppurative inflammation. This condition may not be apparent at first, but gradually, as the disease proceeds, it involves the adjacent veins, producing a thrombophlebitis in the diploë, the thrombus growing in a central direction until it reaches the meninges, where a similar suppurative process is initiated as at the primary seat of infection. It is a suppurative meningitis when the lesion is caused by the extension of suppurative inflammation from the exterior or as the result of a purulent thrombophlebitis. But the specific cause may have affected one of the large venous channels within the cranial vault producing a primary sinus-phlebitis, and the meningitis may be due to extension from this source. By this I mean an inflammation of the large venous sinuses in the cranial cavity, the result of extension of the inflammatory process from the local injury to a subjacent sinus. In considering this part of our subject you must remember the direct communication that exists between the external veins of the skull and diploë and the sinuses through the medium of connecting venous channels. If, for instance, we find we have to deal with only a local inflammation of an infective type, a furuncle, a suppurating wound of the soft parts, or an anthrax, and no fracture has existed, but a local infection has taken place in the soft tissues; if from this focus of infection a thrombophle-

bitis take place, the thrombus forms in the vein, growing by aggregation in a central direction, and gradually reaches the sinus, a thrombus is formed in the sinus, and its presence provokes an inflammation in the sinus itself producing a sinus-phlebitis. By direct contact with the sinus of the meninges the inflammation extends in all directions, producing an infective meningitis resembling, in its character and results, in every respect the primary inflammation in the sinus and in the superficial veins. Furthermore, the infection may have a still deeper origin, and may extend in a peripheral instead of in a central direction; in other words, the inflammatory primary disease may originate within the brain, the process affecting the meningeal membranes from the centre of the brain in a peripheral direction, hence a consecutive meningitis, following a primary encephalitis terminating in an encephalo-meningitis.

In alluding to the symptomatology of traumatic meningitis, the first symptom you will observe is a changed condition of the mind of the patient; a psychical perturbation due to hyperæmia of the superficial cortical substance of the brain, as this portion of the brain is predisposed by the anatomical arrangement of its structure to extension of the inflammatory process from the meninges. The perverted sensorium points to an increased, exaggerated physiological function as the result of increased tissue changes in the gray matter of the cortex, due to an increased vascularization of that portion of the brain, producing increased exaltation of the psychical functions of the brain. If you are called upon to treat this disease as we occasionally meet with it—after a compound fracture of the skull, for instance—the first thing you will notice on your visit is that your patient is contrary, peevish, morose; complains of every little thing; the least noise produces painful sensations. As the disease progresses, or as long as this exaltation in the psychical function of the brain increases, delirium follows—delirium sometimes of an active character; the patient even attempts to run away, jump out of the window, etc.; consequently, any serious change pointing toward a perverted sensorium in cases of compound fracture of the skull should receive your earnest and early attention. One of the first positive evidences of the existence of traumatic meningitis is an excruciating headache, referable at first to the primary seat of the inflammation, but as the process extends it becomes more diffuse. It is a headache which it is difficult to describe, but the words "excruciating" and "diffuse" are sufficient to indicate the character and extent of the local inflammation. It is a pain resulting from inflammation of a serous membrane dense in structure—a pain resulting from vascular engorgement and increased intracranial pressure. As a result of increased exaltation of the cerebral functions we very frequently observe convulsions; the area of peripheral irritation results in exaggeration of the motor function—convulsions general or local, as the case may be. If only one side of the brain is affected, the process is yet limited; in all probability the convulsive movements will occur on the opposite side. Again, if the process is limited to a particular sphere, involving the nerves supplying certain definite muscular groups, you observe a monospasm in the group of muscles supplied by the nerves which are irritated by the central disease.

Vomiting is an early symptom, and when persistent denotes an acute and severe attack. Persistent vomiting, in the absence of mechanical obstruction or inflammatory affections of the digestive tract, should always awaken suspicion of the existence of cerebral disease. Cerebral vomiting is not the retching due to a disturbance of the digestive function, but a mechanical vomiting, so that in the absence of gastric disturbance, and the rapidity with which the attacks occur, you may suspect a central cause. The pulse, in the beginning of the disease, is always increased in frequency, say from 80 to 120, full and bounding, until the local disturbance has led to an increase in intracranial pressure, when it becomes slow, indicating in this connection compression of the brain. By a slow pulse I mean one that varies from 50 to 60 beats per minute. After a few days it again becomes rapid and feeble, being simply the forerunner of approaching dissolution, indicating a general paralysis, due to the central cause; although at first rapid, it has a natural tendency to become softer and smaller in volume, consequently the slowness following a rapid pulse is not a favorable, but a serious change. When it becomes more rapid and small, it is an indication that general paresis is occurring as one of the results of cerebral compression.

The temperature in meningitis is always increased—usually 100° to 104° F.—the temperature usually can be considered as an index of the intensity and extent of the infection. As in all other infectious traumatic diseases, an early high rise in temperature forebodes danger. It simply means that the infection has taken place rapidly and has become diffuse; that the local process has extended with great rapidity, involving at an early date a large surface of the meningeal structures. A paresis in cases of meningitis is always the result of secondary pathological changes produced by the local inflammation; by this I mean either an increase in intracranial pressure, resulting in cerebral compression and consequently a localized area of anæmia in the brain, or an extension of the inflammatory process to the brain and destruction of the centre of sensation or motion, as the case may be; a paralysis first localized, extending as the local cause spreads, affecting more distant structures; a paralysis indicating simply the extent of the cerebral injury or disease, primary or secondary, according to the pathological condition which characterizes the case. The pupils in meningitis are first, as a rule, contracted; in a few days they may be normal, but on testing their contractility you will alway notice a slow response to light, which is one of the characteristic features of meningeal inflammation. As the disease progresses, and exudation takes place, and compression is produced, one pupil may be dilated and the other contracted. When cerebral compression is well marked, dilatation of both pupils takes place.

By pyæmia as a complication of traumatic meningitis, we understand the existence of distant or metastatic abscesses, resulting from disintegration of a thrombus in the sinus, or in the veins.

We have now arrived at an important pathological consideration of cerebral pathology. Strange as it may appear, ancient authorities have entertained the most diverse opinions in regard to the relations existing between a local suppuration and distant abscesses. For instance, the distinguished pathologist, Bichat, claimed

the existence of a peculiar sympathy between the brain and the liver; a sympathy which would come into activity in case of pathological conditions in the brain, producing similar conditions in the liver. Another writer claims that metastatic abscess of the liver is frequently a concomitant condition in cases of pyæmia from cerebral suppuration, and that the disease is first located in the liver, and subsequently extends from it to the brain. Recent pathological research has demonstrated that pyæmia in thrombophlebitis or sinus-phlebitis constitutes one of its greatest dangers, and on post-mortem examinations is found as one of the most frequent causes of death; the thrombus by disintegration will produce pyæmia just as when a thrombus forms in any other part of the body under similar circumstances, giving rise to embolism and metastatic abscesses. In cases of suppurative inflammation of the brain and its envelopes, the process is facilitated by the direct communication of the large reservoirs of the brain with the jugular veins, so that pyæmia as we observe it in cases of thrombophlebitis or sinus-phlebitis means simply the coexistence of metastatic abscesses caused by embolism from disintegration of the infected thrombus.

In the differential diagnosis we must take into consideration concussion. Concussion may precede meningitis, and may complicate the clinical picture. Concussion following immediately after an injury, produces symptoms not referable to any particular portion of the brain, but a condition in the entire cerebrum resulting in partial suspension for the time being of its physiological functions; consequently, during the first twenty-four or forty-eight hours it is impossible to make a positive differential diagnosis. If, however, the symptoms prove more permanent; if concussion is followed by meningitis, there is no restoration of function *ad integrum*, as in uncomplicated cases of concussion, but the process proceeds and results in the manifestation of focal symptoms. Traumatic meningitis is distinguished from incipient encephalitis by the absence of symptoms indicating central irritation—symptoms expressive of exaltation of the cerebral functions, if the inflammatory process in the brain is not complicated by meningitis from the beginning. Again, encephalitis, at first primary and localized, gives rise to early focal symptoms; that is to say, symptoms pointing toward a distinct portion of the brain as the seat of the lesion. The local injury, if unattended by meningitis, again gives rise to focal symptoms from the very beginning, localizing the lesion in the brain, and an absence of those severe symptoms pointing to cerebral irritation, as we observe it in meningitis.

Abscess in the brain has quite a different clinical history: contusion, thrombophlebitis, sinus-phlebitis, cranial osteomyelitis preceding the formation of pus in the brain; it is also attended by focal symptoms, as evidenced by circumscribed regions of paralysis of certain definite muscular groups, pointing to the local lesion in the brain as the cause of the paralysis. Again, abscess of the brain is not attended by such a constant rise in temperature as is found in cases of traumatic meningitis—in fact, in many of the cases recorded the temperature has been noted as being subnormal.

It is impossible, in the beginning, to differentiate simple congestion from inflammation, inasmuch as inflammation is always preceded by congestion; but congestion independent of inflammation is only a temporary condition yielding to local or general measures.

In regard to the localization of the primary lesion a great deal has been said and written.

Bergmann made an attempt to differentiate between convex meningitis and basilar meningitis, and the result of his observations appears to prove that a convex meningitis is noted particularly for its acuity; for its rapid extension and the intensity of symptoms. It has also been claimed as a distinguishing feature that in cases of convex meningitis paralysis appears sooner and is more extensive. Basilar meningitis, on the other hand, is noted for the slowness of the local process, the absence of intense symptoms due to cortical irritation; circumscribed paralysis appearing at a late stage; again, it differs from meningitis of the convex surface of the brain by a tendency of the inflammation to extend along the spinal structures, being followed by a spinal meningitis, as indicated by rigidity of the muscles of the spine and neck, the disease resembling in this respect, in many instances, cerebro-spinal meningitis.

The prognosis has not yet been considered. It is sufficient to say that it is always grave; the majority of cases of traumatic infective meningitis prove fatal. The prognosis is always unfavorable because the infection once thoroughly established is beyond the control of the surgeon; the process always manifests an inherent tendency to extend to all of the membranes and the subjacent brain tissue, and even to the contents of the spinal canal. The prognosis is grave because traumatic meningitis means a suppurative meningitis; suppuration necessarily follows from the very nature of the primary infective cause, provided that life is sufficiently prolonged for such a termination to take place, because in many instances death is produced earlier by compression on account of the unyielding character of the cranial vault, resulting in fatal compression of the brain which annihilates the essential physiological functions of the brain.

In the treatment we will briefly refer to the importance of establishing free drainage as a prophylactic measure; and the resort to all measures which are known to effect thorough local disinfection. It has been found, for instance, that it is not injurious to apply even caustics to the brain, so you are justified in cases of suspected infection after an injury to resort to local disinfection by thoroughly cleansing the wound and its vicinity, to be followed by the application of a ten per cent. solution of chloride of zinc to the wounded surfaces, and thorough and prolonged irrigation with a one-tenth per cent. sublimate solution—taking special precautions that these agents must be brought in contact with the entire surface which has been exposed to infection. The prophylactic treatment is of the greatest importance, while the curative is by general consent considered as *nil*. The life of the patient in all cases of compound fracture is, as it were, in your own hands. If the inflammation has taken place at the seat of traumatism before the patient has come under your care, the most conscientious application of all antiseptic precautions is called for in all cases of wounds of the scalp and compound fractures of the skull, as furnishing the only guarantee against traumatic meningitis. The case is usually beyond hope of recovery after the infective inflammation has invaded the subjacent meninges. In a recent

case before you touch the wound you must disinfect your hands with a strong solution of sublimate. To ascertain the extent of the injury, expose the upper portion of the wound by incising the scalp freely, and if there is any doubt as to the aseptic condition of the exposed meninx, you should disinfect it, being careful, at the same time, to arrest all hemorrhage, so that the formation of a subsequent blood-clot may not act as a favorable culture soil for any remaining germs. Prevent the accumulation of wound products by establishing free drainage of the subcranial space.

The old-time remedy, venesection, needs to be mentioned, not as a curative measure, but as a potent prophylactic remedy to modify reaction after an injury to the brain. When you are dealing with a case of contusion or concussion of the brain—injuries which are necessarily followed by a certain amount of reaction, if you can select the time when reaction is to be reëstablished to modify intravascular pressure, you may prevent undue engorgement by the use of timely and well-directed measures; consequently, at that stage, when cerebral irritation manifests itself by severe headache with a bounding pulse, if there are no contraindications, you are fully justified in resorting to the free use of the lancet as the most potent agent until you have brought the heart's action under your control. With a view of still further modifying the intracranial circulation, resort early to prolonged use of applications of ice to the head, which is particularly useful in this locality, because the vessels being located so near the surface, the ice has a direct effect in contracting the smaller vessels, thus diminishing in direct manner the blood supply to the brain. This agent is not only effectual in modifying the circulation, but at the same time it has a prompt effect in reducing the temperature. The prolonged application of cold may also produce a salutary effect by arresting or retarding the reproduction of infective germs. Albert has well said that in all cases of injury to the skull and brain, you are expected to do something. He says there is no harm in the application of cold water, but when inflammation is threatened, it should always give way to the application of an ice-bag as one of the most potent means to meet the urgent indications. The beneficial effects of cold in modifying the cerebral circulation, in diminishing symptoms of central irritation are well known, and should never be omitted in the prophylactic and curative treatment of traumatic meningitis. In all cases of wound infective diseases we should aid the efforts of nature to eliminate infective germs by inducing an artificial gastro-intestinal catarrh, and for this purpose it is advisable to administer a large dose of calomel with the view of limiting also the cerebral congestion by inducing an artificial congestion in the alimentary canal.

I will next call your attention to the frequency of suppurative inflammation of the brain and its envelopes caused by preëxisting pathological processes independently of traumatism. In cases of suppurative osteomyelitis of the mastoid process, the vein which merges into the lateral sinus is often the medium of a direct extension of inflammation to the lateral sinus, the primary cause extending along that vessel by continuity and involving finally the sinus itself. It is that form of sinus-thrombosis and sinus-phlebitis that so frequently proves fatal in cases of inflammation of the internal ear and mastoid cells, producing, as a result, suppurative meningitis, abscess of the brain, and pyæmia. Suppurative inflammation in the interior of the cranium has also not infrequently been observed as the result of caries of the cranial vault, taking place in a similar manner by continuity of the inflammatory process along the veins, extending, perhaps, to the longitudinal sinus, resulting in a sinus-thrombosis, sinus-phlebitis, and finally meningitis. The succession of pathological changes may, however, be the reverse, the process in the meninges extending by continuity of tissue directly to the sinus, producing sinus-phlebitis, which is in turn again followed by a sinus thrombosis. The symptoms indicating this lesion are those directly referable to a disturbance in the cerebral circulation. If a sinus has become suddenly obliterated either by extension of the thrombus to the sinus, or as a result of secondary sinus-thrombosis following sinus-phlebitis, a passive congestion on the venous side of the obstruction is a necessary and inevitable result; consequently there are symptoms indicative of cerebral congestion and fulness of the external veins which are contributory to the obliterated vessel. When the longitudinal sinus is the seat of obstruction, the veins of the forehead become distended; in case of sinus thrombosis of the lateral sinus, we observe dilatation of the vein over the mastoid process which perforates the bone and empties into the lateral sinus; obstruction in this particular vein being indicated *intra vitam* by local œdema in the region of the mastoid process. Please remember the fact that in case of sinus-thrombosis of the lateral sinus, following suppurative inflammation of the ear, one of the first evidences pointing to obstruction of the venous return from the lateral sinus is local œdema in the region of the mastoid process, and which is not attended by any evidences of superficial inflammation. Again, in case of sinus-thrombosis of the cavernous sinus an interference with the return of venous blood from the orbital region takes place, indicated by an unusual prominence of the eyeballs, but as in this particular region the venous engorgement affects by its close proximity the nerves supplying the eye— the oculomotorius—you have, in addition, evidences of motor paralysis affecting the muscles of the eye. In thrombosis of the lateral sinus, when the thrombus increases in length in a central direction and reaches the jugular vein, the return of venous blood through this channel is obstructed. Gerhart says "this lesion is indicated by a preternatural emptiness of the external jugular vein on the affected side, due to a more easy return of the venous blood through the partially empty internal jugular." You will recognize the lesion by comparing the external jugular veins, locating the lesion on the side presenting a preternatural emptiness or collapsed condition of the vein. If, with this collapsed condition you have symptoms indicating a primary suppuration in the internal ear; and if at the same time you also have symptoms expressive of cerebral congestion, your diagnosis is almost positive: a thrombus in the lateral sinus.

In regard to the prognosis, just one word. If a sinus-thrombosis results from a direct injury to the sinus independently of traumatic infection, simply as the result of anatomical imperfection in the sinus itself arising from the traumatism, interfering with the circulation in the vessel, and the thrombosis is followed by a productive

sinus-phlebitis, your prognosis is favorable, as a gradual obliteration of the sinus is not incompatible with a normal performance of the functions of the brain. If, on the other hand, a thrombus has occurred as the result of a suppurative sinus-phlebitis, or from infection from any other source, the thrombus does not become adherent; it does not serve as a medium in which the products of plastic proliferation find a favorable soil for growth and development, but it is an infective thrombus, and as a result of that infection disintegration takes place, the thrombus breaks up, and produces embolism and pyæmia. Consequently in all cases of infective sinus-thrombosis and infective sinus-phlebitis, the result of infection either from osteomyelitis or wound infection, your prognosis must be guarded, as a fatal termination is inevitable.

In regard to treatment there is but little to say, inasmuch as most of these sinuses are not within reach of operative procedure. It has been suggested in the case of suppurative sinus-phlebitis of the superior longitudinal sinus to expose the sinus in order to remove the infected thrombus, with a view to prevent an extension of the infection to subjacent parts and to guard against pyæmia; but if you recollect the extent to which some of these channels may be blocked the measure appears hazardous to say the least. The inaccessibility of the cavernous sinus, and the importance of the structures in the immediate vicinity of the lateral sinus also preclude the advisability of operative interference. You will treat these cases, then, on the same principle as you would pyæmia. The most important element is the prophylactic treatment. In cases of suppurative inflammation of the mastoid cells do not postpone an operation until sinus-thrombosis has taken place, but resort to timely treatment by using the chisel to gain access to the infected structures, remove the infected tissues by *evidement* and ignipuncture, effect complete and thorough disinfection, and treat the wound as an infective one. These are the measures, when timely resorted to, which will prevent sinus-thrombosis in cases of suppurative inflammation of the cancellated tissue of the mastoid process. The same treatment should be adopted in all osteomyelitic processes wherever they involve the cranial bones.

Concussion.—We will next briefly consider the subject of concussion. By concussion of the brain I mean a sudden and complete annihilation of cerebral function as the result of an external application of force unattended by any recognizable anatomical tissue lesion. It is a perverted functional condition of the brain which results from a sudden application of force, producing a jar, as it were, of the brain substance, a condition which cannot be demonstrated in the brain, either microscopically or macroscopically; its essential feature consists in an altered relation between the molecular component parts of the brain, produced by a sudden commotion or jar. The complexus of symptoms which characterize this lesion appears immediately after an injury, and are expressed to us, in the first place, by a total loss of consciousness; the patient does not appear to recognize his condition; is totally ignorant of what has happened. Very soon after the accident he vomits, which appears as a mechanical act—it is not the kind of vomiting observed in cases of traumatic meningitis, but simply the evacuation of the contents of the stomach, which is undoubtedly an effort on the part of nature to restore the equilibrium of a disturbed circulation. The pulse is slow, from 50–60 per minute, soft and compressible. A peripheral paresis of the vasomotor system is indicated by extreme paleness of the cutaneous and mucous surfaces, clammy perspiration; respiration almost imperceptible; the respiratory movements being limited, imperfect, and slow. Acute cerebral anæmia following immediately upon concussion is indicated by an equal dilatation of the pupil; the paralysis, being partial and general, does not affect any particular muscular group, but all the voluntary muscles, the nerves of motion and sensation, as indicated by a depression of all of the cerebral functions; in other words, the prominent clinical features of concussion are: unconsciousness; slow pulse; slow respiration; dilated pupils, with paresis of the sensory and motor nerves.

In making a differential diagnosis the only conditions which might lead to difficulty are the existence of contusion and compression. Concussion and contusion have been erroneously used as synonymous terms, but constitute two well-marked and distinct lesions, both from a pathological and prognostic standpoint. Concussion is usually an evanescent condition, not attended by any appreciable structural changes, while contusion signifies a laceration of the brain substance and some of the smaller bloodvessels, attended by extravasation of blood, followed by symptoms pointing toward a localized lesion in the brain. Difficulty in diagnosis arises from the fact that contusion is always attended by concussion; and the symptoms of concussion from the commencement may overshadow those due to the contusion. A differential diagnosis is only possible after the symptoms pointing toward concussion have disappeared. Compression due to traumatism, for instance after a depressed fracture of the skull, produces suddenly a diminution of space within the cranial cavity, and, if considerable, is almost sure to be attended by focal symptoms indicating compression of the brain. While the symptoms of concussion almost always subside within a few hours—or, at the most, within a day or two—the symptoms pointing to contusion or compression remain for a longer time, indicating a more serious injury to the brain.

In the treatment of concussion the most that is needed is physiological rest, absolute and complete, in the recumbent position, as this position favors a restoration of the disturbed circulation to its normal condition. If symptoms indicative of shock accompanying concussion present themselves, you may administer stimulants sufficient to counterbalance the depressing effect of the traumatism, favoring at the same time peripheral circulation in the extremities by the application of external heat. The older English surgeons always resorted to repeated bleeding in cases of concussion, with a view to prevent subsequent inflammation. It is not necessary to state the result, perhaps, but a great many patients died, not from the concussion, but from the repeated venesections. Concussion uncomplicated by other lesions is only a temporary condition, and in the great majority of cases yields readily to nature's resources, consequently all that is necessary is to secure rest, and to rely on an expectant course of treatment; at the same time it is your duty to keep your patient under the closest observation until you have excluded the possibility of deeper and graver brain lesions.

One of the first symptoms frequently observed in cases of cerebral contusion are convulsions, local or general, according to the extent and location of the contusion. If the convulsive movements assume the form of a monospasm, the injury is usually located on the opposite side of the brain. Let me here call your attention to the fact that contusion does not necessarily occur always at the site of the external injury. If, for instance, the force has been applied to the right side of the head, and the paralysis or convulsive movements occur on the same side, it is evident that the transmission of force through the brain substance has resulted in contusion of the brain on the opposite (left) side. This is an extremely important point to remember, when we consider the causative relation between a contusion of the brain and brain abscess, where it is of the greatest importance to localize with accuracy the seat of the lesion. It is a familiar fact that surgeons have often been disappointed in seeking for pus on the injured side in operations for abscess of the brain, when perhaps by transmission of force the contusion and subsequently the abscess have occurred on the opposite side.

In conclusion, let me again impress upon your minds the importance of treating even the most insignificant wounds of the scalp under the strictest antiseptic precautions, with a view of securing for your patients absolute protection against the disastrous consequences arising from traumatic infection. In cases of contusion of the brain make an early diagnosis and adopt timely measures which will prevent undue vascular engorgement, and, to a certain extent, extravasation at the point of contusion. In concussion of the brain be careful to eliminate the existence of contusion by watching the course of the lesion diligently until a sufficient time has elapsed, when a positive differential diagnosis between concussion and contusion can be made; and after you have fully satisfied yourself that you are dealing with a case of concussion complicated by contusion, adopt measures which will prevent microbic invasion of the contused area, and which will, at the same time, moderate the vascular engorgement at the seat of contusion.

ORIGINAL ARTICLES.

THE DETECTION OF CHRONIC BRIGHT'S DISEASE.

By CHARLES W. DULLES, M.D.,

SURGEON TO OUTPATIENTS IN THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA, AND IN THE PRESBYTERIAN HOSPITAL IN PHILADELPHIA.

In January, 1884, a gentleman came to consult me on account of a sense of constriction and oppression which he felt in the lower zone of the thorax, and some dyspnœa, which affected him chiefly when he walked in the morning to the car which conveyed him to the place where he exercised his duties. He was a man with important responsibilities, past middle life, rather stout, of medium height, of excellent habits, but whose duties interfered with his mid-day meal and required him to sit for five or six hours every day in a crowded and ill-ventilated room. The point in regard to his case to which I wish to call attention does not require further description of his condition and symptoms, except to say that he had never known of having any œdema of the feet or other cause to suspect his kidneys. On making a physical examination of his thoracic and abdominal organs, I found no sign of any disorder except a loud, ringing, or booming second sound of the heart, which my experience has led me to regard as of peculiar significance. This sound is simulated by that which is heard when one presses the palm of his hand pretty firmly against his own ear, and at the same time taps the back of his head with his forefinger. This sound, heard over the heart, has seemed to me to be characteristic of a moderate degree of essential hypertrophy of this organ. Hearing it in the case I am describing, I thought it important to examine the patient's urine. This I did most carefully and thoroughly. I found it normal in amount, color, clearness, sediment, and odor. Its reaction was strongly acid, its specific gravity 1.020; the urates were normal; uric acid was in excess; the phosphates were normal; no albumen was found, and no sugar. By a microscopical examination, after forty-eight hours settling, I found various forms of uric acid crystals, a few small plugs of small white cells, and a *very few delicate hyaline casts*. I gave my patient a cautiously worded diagnosis, advising careful living, and instituted treatment which relieved his symptoms. Becoming deeply concerned about himself, however, he now, with my full approbation, consulted the gentleman who had before been his medical adviser. The latter examined him, and said that his heart was perfectly healthy, and that an examination of his urine showed it to be normal. Not quite reassured by this, the gentleman consulted three other eminent medical men; one of whom said he had a fatty heart, while two of them said his heart was sound. One of the latter, who also said that his kidneys were perfectly healthy, had him under treatment for a long time, giving him chiefly Fowler's solution and nitroglycerine. A prolonged absence from work, with travel and carefully regulated diet, contributed to making the patient feel decidedly improved. After the lapse of two years and a half, he came to me again on July 3, 1886, asking me to examine his urine, so that he might select an appropriate medicinal spring, at which he should spend his summer vacation.

The circumstances which I have narrated made this visit one of peculiar interest to me, and the examination of the patient's urine equally interesting. Again I found the amount, color, clearness, and sediment normal, while the odor was not pleasant. The reaction was acid, and the specific gravity 1.024. The urates were normal, the phosphates were doubled. On testing by boiling the filtered urine, and by applying the nitric acid test in the ingenious manner suggested by Dr. Thomas S. K. Morton, in The Medical News, May 8, 1886, I failed to discover any evidence of the presence of albumen. But on testing it with the potassio-mercuric iodide and citric acid paper of Dr. Oliver, of Harrogate, England (with some papers which I received directly from him), I did find a distinct trace

of albumen.[1] I found no sugar in the urine, and no other abnormality except a slight excess of coloring matters. After twenty-four hours, and again after forty-eight hours, I made a microscopical examination, and found hyaline tube casts, one young epithelium cell, various forms of uric acid, oxalate of calcium crystals, and several varieties of microörganisms.

Fig. 1 represents what was found under a single cover glass, although all these objects were not seen in any one field of the microscope.

FIG. 1.

a. Hyaline tube casts—one so-called waxy cast.
b. Uric acid in various forms.
c. Young epithelium cells.
d. Oxalate of calcium.
e. Micrococci and bacilli.

It is seen, then, that what I discovered at this last examination corresponds with what I found two years and a half ago; and I think it corroborates the diagnosis I then made of chronic Bright's disease, associated with a moderate degree of essential hypertrophy of the heart, or *vice versa*.

The interest of this case hinges upon the diagnosis and the ground upon which it rested. As to the heart, the diagnosis rested upon the peculiar sound described above, which has never, I think, deceived me. But the diagnosis was, in my opinion, supported by what I found in the urine, and the inference which it warranted. The discovery of the tube casts, which escaped another, and perhaps several examiners, may have been due to the method of examination which I employ, and it is chiefly to call attention to this that the account of the present case is published.

In the first place, I am strongly impressed with the advantage of allowing the sedimentation of a specimen to take place in a straight glass, and not in a conical one, as is recommended in most of the books. In the latter, I think, one may easily miss a few tube casts, because they are not heavy enough to resist the attraction and friction of the sides of a conical glass, and so never find their way to the bottom. For this purpose a test-tube with a foot, I think, is the best receptacle.

Another point to which I desire to call attention is the plan I have devised for catching a specimen of sediment for microscopical examination when the deposit is very slight. The apparatus I use is represented in Fig. 2. After leaving the urine to settle

FIG 2.

in a test-tube with a foot for twenty-four hours, under a paper cover pressed down upon and around the top of the tube, I take a long, pointed glass tube, close the upper end firmly with my finger, and, pushing the point through the centre of the paper cover of the test-tube, thrust it steadily to the bottom of the urine. I now remove my finger, and the bottom layer of the urine, containing the deposit of twenty-four hours, flows up into the long tube. When it has risen to the level of the urine in the test-tube, I carefully twist a piece of soft paper over the upper end of the second tube, or stuff a small bit of absorbent cotton into it, to keep out all foreign substances, and allow the apparatus to stand undisturbed for twenty-four hours or longer, during which the deposit contained in the column of sediment falls to the bottom of the smaller tube. At the end of this time I close the upper end of the smaller tube firmly with a finger, withdraw it carefully from the test tube, and then allow the two or three drops nearest its point to run out on a slide, in two or three places, cover them properly with thin glass, and put them under the microscope.

[1] In this connection, I would refer those who are interested in the subject of delicate tests for albumen, to an interesting paper on this subject by Dr. James Tyson, and to the discussion upon it, before the Philadelphia County Medical Society, December 19, 1883, published in the volume of Proceedings for 1883–1884.

In this way, I believe, one may obtain a most typical specimen of the deposit, and I think the adoption of this method might prevent such a conflict of opinion as took place in the case I have described, or such an occurrence as is mentioned by Dr. Roberts in his work on *Urinary and Renal Diseases*, 4th edition, p. 439, in which he discovered hyaline casts in a urine which had been repeatedly examined with negative results by two medical men well accustomed to such examinations.

It is in the cases in which it is difficult to determine the existence of chronic Bright's disease that it is often most important to be aware of its presence. Many obscure symptoms become intelligible when this factor is recognized and taken into account, and it is often possible to put a patient on his guard against dangers which would not be considerable if the kidneys were in perfect condition. I am aware that there is often unnecessary alarm felt both by the patient and by his physician upon the discovery of a chronic disorder of the kidneys; and I would not like to contribute to any increase of the already exaggerated dread of Bright's disease. But if such a condition is present, it cannot be doubted that it would be for the advantage of both in most cases to have it known; and so I hope that the simple suggestion which I here make may prove of value.

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PSEUDO-INTESTINAL OBSTRUCTION.

By H. ILLOWAY, M.D.,
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In perusing the journals we find reported many cases of intestinal obstruction that seem to have presented but little difficulty in their treatment, and in which, after a shorter or longer interval, the patient goes on his way rejoicing. The main features of the majority of the cases so reported, seem to be the sudden constipation, the ineffectiveness of purgatives, and the rapid relief afforded by an enema or two. It is, then, not to be wondered at that when cases are met with that are more protracted, more stubborn, that are attended with more distressing manifestations, the practitioner, with the histories of the above-mentioned cases in his mind, should proceed slowly, abstain from all radical measures in the hope that the next prescription or the next clyster administered will bring about the much desired cure. Comparing these numerous cures with the statistical tables presented to us by Leichtenstern, Brinton, and Treves, we cannot but be struck by the discrepancy, and when we recall the aphorism of De Haen regarding this malady, "*morbus terribile creberrime lætale*," we certainly must be surprised.

The question then naturally arises, Are all these cases cases of intestinal obstruction, or may there not be some other cause for this sudden constipation and for the attendant manifestations?

To a certain extent this question has already received an affirmative reply. In 1865 Dr. Henrot, of Paris, published a monograph entitled *Des Pseudo-Étranglements*, in which he calls attention to a series of cases which, though having many of the symptoms of intestinal obstruction, were in reality not so; the manifestations being brought about by causes other than an obstruction of the bowel. In support of his position he cites numerous cases which, during life, presented all the symptoms of intestinal obstruction, but in which, upon post-mortem examination, the lumen of the bowel was found perfectly pervious.

In an elaborate study of the etiology of this new category he classifies these cases under three heads:

1. Those due to direct paralysis of a segment of the bowel from changes in its walls.

2. Those due to indirect paralysis, depending upon reflex nervous action.

3. Paralysis of the bowel as a feature in a general affection of the nervous system.

It can be readily seen from the above classification that it embraces many grave forms of disease which frequently end fatally, in which, during life, it is impossible to make a diagnosis between the real and the pseudo form of obstruction and in which only an autopsy can disclose the true condition. The milder forms are generally attended by such other phenomena as, *e. g.*, those of hysteria, so that their true character is, in a majority of instances, easily recognized.

A series of cases have, however, come under my observation, which, though belonging in the category of pseudo-intestinal obstruction, cannot be ranged under any of the etiological heads above mentioned—a class of cases which, having many of the features of intestinal obstruction, are frequently mistaken for such, are reported as cases of true intestinal obstruction cured with little difficulty, and are, without doubt, included in the statistics of recoveries from this malady.

The cases that I have seen, etiologically considered, may be classified under two heads:

1. Those due to paresis of the bowel from inhibition of the nervous centres—or, perhaps, but temporary inertia of the muscular intestinal coat.

2. Those due to large accumulation of flatus.

Case I.—In the summer of 1880, I was called to see, in consultation, Mr. A. L., a German, saloon-keeper, æt. forty-two, a man of ordinary stature and good physical development, who had been engaged in his present business for years. The history of the case, as given by the attending physician, was as follows: Patient being constipated for several days he took a purgative; this not producing the desired effect, he called upon his physician, who prescribed for him the Vienna laxative infusion, reinforced by an addition of sulphate of magnesia. This not acting, some other purgatives were prescribed and taken, but without any effect. The doctor now began to suspect that he had to deal with a case of intestinal obstruction. The patient complained of great fulness, and said he could not lie down; he had great difficulty in breathing; his countenance was very anxious. He dreaded that he was afflicted with some terrible malady, and was, perhaps, near his end, because his bowels would not act. He was extremely restless and could not lie still for five minutes at a time; he would lie down on the bed for a moment and jump up again and walk the floor. He had not slept at all for two nights; he did not complain particularly of pain. An ex-

amination of his abdomen revealed nothing upon the exterior to indicate an intestinal obstruction. There was some tympanites, not very extensive, and some sensitiveness to pressure over the whole abdominal region.

I advised an enema of hot water to be immediately administered. An ordinary rubber syringe was procured, and he was at once given an injection of about a pint and a half of water, at a temperature of 103°. In about ten minutes this was followed by another injection of about the same quantity of cold water, temperature about 90° F. These passed away. He was now ordered small doses of quiniæ sulphat. with extract of nux vomica. We left him, returned in about three hours, and gave him another injection of hot water, which was followed by a free fecal evacuation with discharge of flatus. He was ordered to continue the pills. On our visit the next morning we found the patient behind the bar. He declared he was all right. He had slept well, except when compelled to arise to evacuate his bowels, which occurred three times during the night. I saw him some time afterward and he had had no further trouble.

Although many of the symptoms that usually accompany intestinal obstruction were wanting in this case, such as pain, tympanites, etc., still, the sudden constipation and the total ineffectiveness of purgatives of various kinds were good grounds upon which a true intestinal obstruction might be supposed. It must, furthermore, be considered that pain may be absent altogether as well as tympanites, as has been pointed out by Mr. Treves in his Jacksonian prize essay, and not manifest itself until after the obstruction has persisted for some time. This absence of pain is well illustrated by the clinical histories of Cases I. and IV. in my paper on "Treatment of Intestinal Obstruction by the Force Pump," in the number of *The American Journal of the Medical Sciences* for January, 1886; in Case I., where there was clear and undisputable evidence, as there related, of intussusception, there was very little pain and only complained of when questioned about it; and in Case IV., where the patient, a few days before her death, though the trouble was of some standing, had walked around visiting friends, ascending innumerable stairs in her peregrinations. A most striking illustration of this point is furnished by the case reported by Dr. John McGown of a patient suffering from intestinal obstruction for a period of nine months. In his report the doctor says, "He complained of no pain at this nor at any time during the whole course of the disease.[1]

I felt convinced, however, after a careful examination of the patient, that we were not confronted by a true intestinal obstruction. The fact of absence of all manifestations upon the abdomen (though this *per se* does not count for much frequently), that the patient had been well up to the date of the setting in of the constipation, that he jumped out of bed without difficulty and raced around the room (though this latter is not a reliable diagnostic sign as already shown)—in fact, the ensemble of the case led me to believe that we had to deal with some temporary inhibition of intestinal action, and not with an obstruction of the lumen—and that a powerful stimulus to the muscular walls and nervous filaments would bring about the desired effect. To this object the treatment already related was directed and the result verified the diagnosis.

As regards the etiology of the inhibition in this case, it would be no difficult matter to invoke a simple inertia of the intestinal tract, such as is frequently met with; the only obstacle to such an assumption would be the fact that ordinary inertia or constipation is generally easily overcome by the use of a purgative, more or less strong, according to the habit of the patient, whilst in the case here related these remedies seemed ineffective. However, even this might be explained.

There has presented itself to me in this connection, the question, Has the alcoholic habit, or rather the imbibition of a considerable quantity of alcoholic beverage daily, played any *rôle* in this sudden inhibition of intestinal action? It is well known that alcohol imbibed produces an irritation of the peripheral nerves, and, as has been demonstrated, may proceed so far as to produce ataxia and paralytic conditions either by atrophy or destruction of nerve structure,[1] and though it may perhaps be affirmed that beer containing but a minute quantity of alcohol and having considerable diuretic properties which cause its early elimination from the system, cannot bring about such severe irritation as could ultimately result in atrophy or destruction, still it cannot be denied that even this mild alcoholic beverage does produce irritation, or stimulation if it so please, of the peripheral extremities of the nerves. This is well illustrated by the increased appetite felt by persons with weak digestion or overworked persons after taking a glass of beer before meals; the relief of the sensation of "sinking in the epigastrum," so frequently experienced by nervous or debilitated persons, by taking a little ale or beer, and many other phenomena of this character that come under the observation of every practitioner. The deduction might, therefore, be readily made that a continuous consumption of even such mild liquor in considerable quantity could bring about a condition of obtundity of the peripheral nervous filaments; and, as it has been demonstrated experimentally that alcohol has a peculiar affinity for the stomach and bowels,[2] it could be readily explained why such a condition of the nervous filaments should supervene more readily in these organs than in other parts of the body.

If it be objected, however, that the intestinal canal is not under direct control of the nervous system, that the food and other matters passing through it are sufficient to excite peristaltic action,[3] another explanation can be offered. It is well known that alcohol has a relaxing effect on the muscular structure,

[1] British Medical Journal, January 21, 1882. "Intestinal Obstruction existing for Nine Months Cured by Colopuncture," by John McGown, M.D.

[1] American Journal of the Medical Sciences, January, 1886: "Alcoholic Paralysis." Brain, January, 1886: Dr. Dreschfeld, "Further Observations on Alcoholic Paralysis."

[2] Practitioner, London, 1884. Progrès Médicale, April 5, 1884.

[3] Foster's Physiology, edited by Reichert, 1880: "Movements of Small Intestine."

and it might, if taken steadily day by day, short of actual intoxication, produce such a torpor of the muscular coats of the intestine that they would not respond to the usual stimulus.

Or there may be produced such a condition of chronic congestion of the parts as to prevent perception of the usual stimulus.

I have observed clinically in extensive beer drinkers that at times a sudden torpor seems to come over the intestinal tract, manifesting itself by constipation and a free development of flatus, so that they will feel bloated (the belly is very tympanitic) and have difficulty in breathing—and certainly extensive tympanites is an evidence of paresis of the bowels.[1]

Case II.—Ch., æt. sixty-three. Rolling mill boss; short of stature and ponderous in weight. Has been sick for some days; cannot pass his urine well; great dyspnœa so that he cannot lie down; cannot retain anything upon his stomach. He has been under medical treatment since the outset, but seeing no improvement he discharged his physician and, on the advice of a friend, sent for me. An examination revealed enormous tympanites of the abdomen. No soreness, but complained of griping pains; he had had no stool for five days. He was afraid, from what his physician said, that his bowels were tangled. I directed that he be given an injection with hot water, temperature about 103°. His wife procured an ordinary syringe and injected about a pint, I remaining to see that the clyster was properly administered. This passed off with a free discharge of flatus; about ten minutes later he was given another injection, about the same quantity as before of spring water at the ordinary temperature (this was in summer); it soon passed off with abundant discharge of flatus and some fecal matter. Fifteen minutes after this another hot-water injection was given and came away with a large stool. He said he felt very much relieved and lay down and rested. The same afternoon he took some beef-tea and retained it. I ordered him some tincture of nux vomica with a little Fowler's solution. The next day he was at work.

Case III.—Mrs. G., æt. fifty-five, woman of short stature, very fat, and large pendulous belly. Complains of great pain in the abdomen. As I have treated her frequently for such attacks, and it being late in the evening I prescribed an opiate, directing the same to be repeated every hour and a half until suffering was relieved. Returned next day and found her no better; still suffering great pain—in fact, had suffered all night; her abdomen was very much distended and painful. Her bowels not having moved (her habit being every third or fourth day), I directed that a large dose of oil be given, to be followed by an opiate after the bowels had acted. On my afternoon visit I found that the oil had not acted. I ordered it repeated with same directions as in the morning. The next morning early I was summoned to her. She complained of greater pain than before; she could not rest all night; she had thrown up the oil and vomited everything after that. She was short of breath and was afraid that she would choke. The tympanites was more marked. I directed that she be given an injection of hot water. This was done and a considerable discharge of gas soon passed away. She felt greatly relieved after this, the griping pains ceasing and the choking sensation disappearing. I directed her daughter to repeat these injections every two hours until she had several stools. Next morning I found her much better; her bowels had moved; the pain had ceased altogether and she had slept well all night; the tympanites was gone; she felt very much prostrated. A rest of another day in bed, good nourishing food, and a little brandy, and she was well and about.

The great resemblance of these two cases to true intestinal obstruction is apparent; we have the symptoms that we find in the most marked cases of this disease. We have the constipation, in the first case of five days' duration, in the second case two days, though if her habit as regards stools had not been known to me, I might have counted it five days also; there were the pain, the distended belly or bell-bombé (upon which some lay great stress), any lastly, in Case II. the urinary difficulty. Neverthed less, I say with certainty that these were not case-of true intestinal obstruction, but that the whole difs ficulty lay in the superabundant flatus to which people with large pendulous bellies are prone, especially elderly people with defective teeth and also persons whose digestive powers have, from some cause or other, become enfeebled; this superabundance of flatus causing a paresis of the intestinal tract and thus inhibiting its action. Furthermore, the success of the treatment, a small enema, but of powerfully stimulating character, so as to provoke powerful contraction of the bowel and thereby the expulsion of the flatus, proves the correctness of the diagnosis.

That it is possible to mistake cases of this character for true intestinal obstruction is very evident, and it is not stretching the imagination to assume that many of the cases reported as intestinal obstruction cured by puncture with a fine trocar, and in which the main feature of the operation was the evacuation of a large quantity of flatus as is expressly stated by Mr. Worthington in the report of his case,[1] were cases of inhibition of intestinal action from overdistention of the bowels by flatus. Mr. Treves, in his book on *Intestinal Obstruction*, chapter on treatment, section puncture with fine trocar, quoting two cases, expresses great doubt as to their being true intestinal obstruction, for his own experience with this method has not been such as to lead him to believe in its efficacy. This opinion is corroborated by the history of the case of Dr. McGown, in which, although the patient was temporarily relieved by this procedure, it required other measures to effect a cure.[2] It has, perhaps, been the habit up to the present time of calling all cases intestinal obstruction where the main feature is an inhibition of intestinal action without regard to the etiology of the inhibition; but at the

[1] Quain's Dictionary of Medicine. Article, "Tympanites."

[1] Case of Intestinal Obstruction Relieved by Puncture of the Bowels, by James C. Worthington. British Medical Journal, 1882, vol. ii.

[2] Although the title of his article would seem to indicate that the patient was cured by the colopuncture, a careful reading will demonstrate that the colopuncture only relieved, and that it was the other procedure that cured.

present day when operative interference by laparotomy is growing more in favor, and resort to it advocated at an early stage of the case, the question of differential diagnosis between pseudo- and true intestinal obstruction certainly becomes one of great importance. This is well shown by the case mentioned by Dr. Lusseau of the hysterical form of pseudo-strangulation: "In this instance the resemblance was so exact that *an operation for the relief of the intestinal obstruction was proposed.* The patient, however, soon recovered when treated by antispasmodics."[1] It is important to know whether a given case may be one in which the question of operation may present itself for consideration at any moment, or whether it be one of those pseudo forms that end in recovery with very little treatment. Such a distinction is furthermore of importance for the statistics of intestinal obstruction, that a correct estimate may be had of the number of cases, number of recoveries, as to the most successful means of treatment, etc.

I do not think it necessary to give any detailed explanation for the alternation of the hot and cooler injections as detailed in this paper, and mentioned in my paper, "The Treatment of Intestinal Obstruction by the Force Pump" (Ibid.); by this alternation the bowel is not habituated to the enema, and each clyster has a stimulating effect both on the muscular coats and on the peripheral nerve fibres, and excites peristalsis.

I will only add, in conclusion, that I believe that when enemata are resorted to for the purpose here indicated or for true intestinal obstruction, they should be of hot water; or if the patient prefer, and there are no contraindications, of cold water, that an effect may be immediately produced: the injection of lukewarm water is without effect, as can be readily seen by a study of many reported cases.

THE INTESTINAL SUTURE OF APPOLITO.

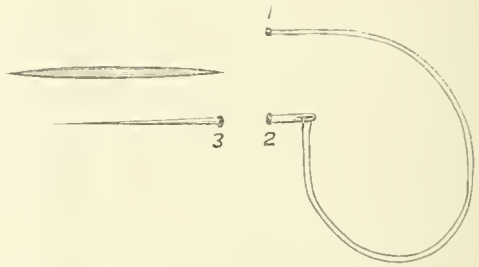
By ROBERT P. HARRIS, A.M., M.D.,
of Philadelphia.

Through the kindness of Dr. Domenico Peruzzi, a colleague of Prof. Pietro Loreta of Bologna, I am enabled to present a description of the suture which the latter has used so successfully in his divulsive operations upon the cardiac and pyloric orifices of the stomach, for closing the incision made in this viscus, so as to secure it against the escape of fluid nutriment, and establish an early union of the wound.

Since the time (1824) when the celebrated Jobert (de Lamballe) established the fact that intestinal wounds could be most rapidly united by securing their peritoneal surfaces in contact, by a process of welting, throwing up a ridge on the inner surface of the bowel, a revolution has been gradually effected in the manner of treating intestinal injuries whether accidental, or done by the knife of the surgeon in the exsection of morbid parts. Althongh the suture of Jobert was a very objectionable one, the principle on which it was founded soon led to improvements, and two years later (1826) to the design of the interrupted stitch of Lembert, made of such renewed importance of late in its application to securing the peritoneal portion of the uterine wound in the Cæsarean method of Sänger. The value of this application was shown in an operation performed in Philadelphia in November, 1884, by Dr. Thomas M. Drysdale, in which the uterine wound was so effectually secured that its peritoneal portion was found fully united after a survival of twenty-six hours, and no fluid had escaped into the peritoneal cavity. The old glover suture of the intestine, not being adapted to the new principle of closure, was modified and became the spiral uninterrupted suture, in which the stitches are taken as pins are inserted in a pin-paper, and the ridges are drawn together as in the manner of the Lembert suture. In 1844, Dr. Gély, of Nantes, devised the double parallel uninterrupted suture made with two needles and one thread, the thread ends being crossed to opposite sides of the wound after each stitch was taken, and the whole drawn and secured at the terminus by a single knot.

The suture of Appolito is a simplification of that of Gély, and is much more easily applied, as it is inserted with one needle which carries a double thread. When the needle is threaded, a knot is tied over a little ball of aseptic cotton, a modification of the plan of Reybard, and the needle is passed from within outward beyond the end of the wound, leaving the ball on the inside, as in Fig. 1: and the first

Fig. 1.



longitudinal stitch is taken parallel with the line of the wound on the opposite side, as is also shown. In Loreta's operation, the initial puncture is made about a centimetre beyond the end of the wound, and at the same distance from the line of it at the side: the stitch-holes will be two centimetres distant across the wound, and each internal stitch will be taken parallel to the wound on alternate sides, a centimetre long and a centimetre from the edge of the wound, as in Figs. 2 and 3.

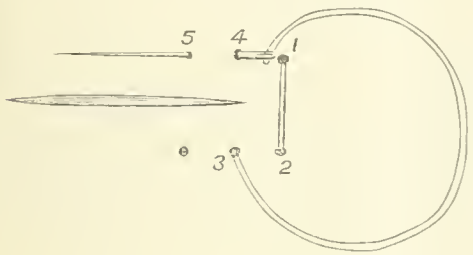
When the last stitch is taken, the thread is cut on one side and a Lembert suture is inserted with the remaining strand on the opposite side, as shown in Fig. 3. The double thread is drawn successively from puncture 3 to puncture 11, and the single strands at punctures 11 and 12 are drawn, tied securely and cut near the knot. The line of direction of the wound will now be seen to present a sinuous fissure, and not a straight one as after the closure of Gély, provided the stitches of the latter

[1] Intestinal Obstruction, by F. Treves, p. 405. Italics mine.

have been taken in pairs of exactly the same length, otherwise there will be a tendency to gape.

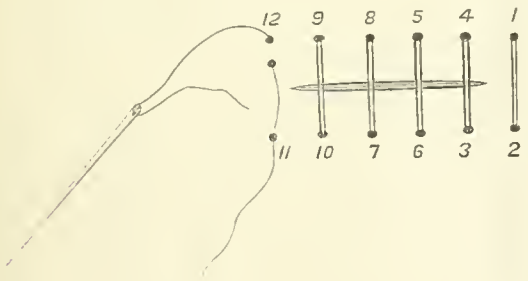
The Appolito is no doubt a better suture for the stomach than it would be for the intestine, where the walls are thinner and more yielding. In a woven fabric, the single stitch of Appolito would be known as a *running stitch*, and that of Gély as a *double stitch*, the latter, upon mechanical principles, being con-

Fig. 2.



sidered the more secure, although the former in handwork is more employed for its simplicity, where strength is not of absolute necessity. To make a single stitch that will not draw, would be more complex than either. The Lembert suture is valuable for small or cross wounds of the bowel, but must be inserted at very short intervals to prevent gaping. The value of any particular form of suture does not depend so much upon its design, as upon the mechanical capability of the operator in accurately carrying it out. How rarely do we see, even in a skin-wound, all of the needle punctures made at exactly opposite points, as shown when the threads come to be tied across it. Accuracy is all-important

Fig. 3.



in making the closure of an intestinal wound effective, whether it be made by the suture of Lembert, Gély, or Appolito: it is more easy, by either, to pucker the wound, than to avoid doing so. In all intestinal sutures, as the thread ultimately escapes by ulceration into the bowel, it is the practice to carry the stitches through all the coats, and not partially, as was once the custom. The material preferred is pure Chinese silk which has been boiled in water to separate the gummy matter.

MEDICAL PROGRESS.

Therapeutics of Cholera. — Dr. Grant-Bey thus describes his method of routine treatment in cholera epidemics.

On July 14, when the malady was raging at Geezeh, at our very doors, by the request of the local board I drew up elaborate instructions about cholera, and indicated the remedies that should be used, viz.:

1. "A mixture," of which the following is the composition and the instructions for use:

R.—Tincturæ opii	. . .	℥ ss
Spiritus camphoræ	. . .	℥ ss
Tincturæ capsici	. . .	℥ ss
Chloroformi	. . .	℥ iss
Spiritus vini rectificati	.	ad. ℥ iiss.—M.

Sig.—For the premonitory diarrhœa of cholera, twenty drops for an adult, and five drops for a child, in half a wineglass of water or chamomile tea, every hour or every two hours, etc., till diarrhœa ceases; but if vomiting or cramps set in, then leave off the mixture and give the "Anticholérique Pasteur," of which the following is the composition and mode of administration:

R.—Hydrargyri bichloridi	. .	gr. ij
Spiritus chloroformi	. .	℥ x
Spiritus camphoræ	. . .	℥ v
Tincturæ lavandulæ co.	.	℥ ss
Spiritus rectificati	. .	ad. ℥ ij.—M.

Sig.—To be used when diarrhœa cannot be checked, and vomiting or cramps commence; a teaspoonful (℥ j) to an adult, and thirty drops to a child, in chamomile tea, every quarter of an hour, every half hour, every hour, etc., according to urgency of symptoms.

On July 15, the epidemic reached Cairo, and its suburb Boulaq was devastated by it. Out of 1800 men employed at the Boulaq railway workshops, fifty-nine died of cholera. Many others who were attacked recovered after the prompt use of the remedies, and most of those who died did not take the medicine.—*Albany Medical Annals*, August, 1886.

Persistent Sweating in Intermittent Stages.—In *The Asclepiad* for 1885, vol. ii. pp. 190–192, there is related from the *Medical Press* the history of a case by Dr. Myrtle, of Harrogate, in which the patient, a man seventy-two years old, died from persistent sweating. Since then I have received the details of other cases, similar but not so severe, to one of which attention should be called.

In this instance the patient, Miss C. E. de M., has herself supplied me with the history of the symptoms and with a memorandum and temperature chart by Dr. Dabbs, of Shanklin, Isle of Wight, under whose care she remained during the whole of the attack. Miss M. had suffered, three years previous to the occurrence of the particular symptoms now under consideration, from typhoid fever, and also from some signs of a tuberculous nature, so that she was an invalid before the attack. She took what she considered to be a chill in the summer of 1884, and suddenly began to perspire. The perspiration came on every day from ten to

one o'clock, and again from ten to one o'clock in the night, with occasional repetition in the early part of the evening. During these times she was simply bathed in perspiration, so that all her clothing was completely saturated, the bedclothes sharing the same saturation when she was in bed during the paroxysm. In order to give every attention to the various remedial measures that were suggested, a professed nurse was obtained from London, and all changes of treatment, general and local, were tried, but, as in Dr. Myrtle's case, without any effect. The perspirations began on August 1, 1884, and continued until the first days of November, when they suddenly and completely ceased. Owing to the existence of continued pain in the epigastrium, Dr. Dabbs inserted a seton over the seat of pain, and it is worthy of note that the cessation of the perspirations occurred at the time when the discharge began to take place from the seton. This practical fact deserves remembrance in similar intractable forms of the disease. Miss M. has had no recurrence of the intermittent perspirations since 1884.—Dr. B. W. Richardson, in *The Asclepiad* for July, 1886.

The Jugulation of Typhoid Fever by Sulphate of Quinia and Lukewarm Baths.—At the session of the Academie de Médecine of August 3, M. Péchollier, of Montpellier, read an essay thus entitled. He concluded that, by its antizymotic action, quinine, when associated with lukewarm baths, shortens the course of typhoid fever to a mean of from fourteen to sixteen days. He bases his statements upon over sixty-five consecutive cases, speedily cured, without any failure. —*L'Union Médicale*, August 5, 1886.

Beautifying the Skin.—In the work on diseases of the skin edited by Professor von Ziemssen, Dr. Heinrich Auspitz, of Vienna, makes the following observations upon this supject:

1. A healthy integument is not necessarily beautiful. Even if all requirements concerning diet, residence, atmospheric and climatic conditions, etc., are carried out, the complexion is often extremely bad. The general condition of health has no influence upon the beauty of the complexion, though it has upon the health of the skin.

2. Cleanliness is a *sine qua non* of the beauty of the complexion, though it does not play a great part in the health of the skin.

3. Water is serviceable to the skin in only moderate amounts and at moderate temperature. Very cold or warm baths, when used to excess, diminish the elasticity of the skin and its power of resistance to external irritants.

4. Distilled and so-called soft water are more suitable for washing, and less irritating than hard water.

5. The hard soda soaps are usually preferable to the soft potash soaps for toilet purposes. The quality of soaps depends upon the quality of their constituents and the thoroughness of their saponification. Good soaps must not contain free alkali, or any foreign irritating substance. The addition of moderate quantities of perfumes does not materially change the quality.

6. Simple, finely ground powders, such as starch, magnesia, etc., are entirely innocuous, and often act as a useful protection against external irritants.

7. Frequent application of alcohol abstracts the water of the skin, makes it dry and brittle, and impairs its nutrition. This is also true of glycerine. All toilet washes containing alcohol to any considerable extent should be avoided.

8. This is true to a still greater extent of other additions to washes, such as corrosive sublimate, mineral acids, certain metallic salts, etc.

9. Camphor acts merely as a bleaching powder. This is also true of benzoic resin, sulphur flowers, and substances containing tannic acid.

10. The use of sweet-smelling oils and fats should be employed to a greater extent than is now done for toilet purposes.

11. This is particularly true with regard to the growth of the hair. The nutrition of the scalp should be increased by the rational application of fat (for example in the form of oil baths by means of the application at night of a sponge soaked in oil upon the scalp), and the greater use of simple pomades. These should be applied to the roots of the hair rather than the shafts.

12. Substances should be avoided, or sparingly used, which abstract water from the skin and the roots of the hair.—*Southern California Practitioner*, August, 1886.

Stomach Operations, Performed at Prof. Billroth's Klinik from 1880 to 1885.—Briefly, the cases and operations are as follows: Gastrotomy, one case. This was done on a patient, æt. nineteen, for the extraction of some teeth. The patient recovered in five weeks. Gastrorrhaphy, two cases; both died. In one, the operation was performed for rupture of the stomach after a plentiful meal. Death occurred from collapse in four hours. In the other, from a gunshot wound in a woman aged sixty-three. Death from peritonitis and collapse in twenty-eight hours. Gastrostomy, four cases. In one, for œsophageal stricture, the result of swallowing a caustic alkali. Death occurred on the ninth day from inanition. In a second, for carcinomatous stricture at the cardiac orifice. Death, one month and a half after the operation, from croupous pneumonia. In a third, for the same reason as the second. Death, twenty-four hours after from inanition. In a fourth, also for carcinomatous disease of cardiac orifice. Death, eighteen days after from inanition. Gastrectomy, eighteen cases, of which eight recovered, and ten died. These cases consisted of fourteen pyrolectomies for carcinoma of the pylorus, six of which recovered. One pylorectomy, combined with gastro-enterostomy, also for carcinoma of the pylorus, death in four months from return of the disease; three pylorectomies for cicatricial stenosis, one recovered; and one, partial resection of the pylorus (removal of a wedge-shaped piece), with death.—*Glasgow Medical Journal*, August, 1886.

Action of Urine on the Peritoneal Cavity.—At a recent meeting of the Russian Medical Society Dr. D. O. Oll recorded the results of a series of experiments on eleven dogs, in each of which a ureter was incised in such wise that its contents should drain into the peritoneum. The permeability of the ureter was assured by the introduction of a small glass tube in its upper end. Wound dressed with Listerian precautions. Eight dogs died of peritonitis between the third and sixth day after operation. The three survivors were

sacrificed on the seventeenth, twenty-fourth, and twenty-fifth day respectively. In them the urine had produced simply a local peritonitis with adhesions, resulting in obliteration of the artificial fistula. Not a drop of urine was found in the abdomen. There was dilatation of the wounded ureter and of the pelvis of the kidney, degeneration of the renal parenchyma. The author concludes that fresh urine is absorbed from the peritoneum without any bad results provided antiseptic precautions be used.—*Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 5, 1886.

Differential Toxicological Behavior of Gelsemine and Strychnine.—The possibility of mistaking a case of strychnine poisoning with criminal intent for an accidental intoxication caused by a prescribed preparation of gelsemium recommended to our notice Raimondi's pertinent comparative investigations as set forth in the *Ann. di Chim. Med.*, Sett., 1885. If it is possible to recover enough of the poison to enable us to experiment with it on warm-blooded animals, the nature of the poison is readily established. If, however, the scantiness of the substance in question allows only experiments on frogs, the following differential features must be our guide:

1. In gelsemium poisoning the motor paralysis has a central cause, which does not apply to strychnine.

2. The effects of strychnine manifest themselves with equal intensity over the whole body, while in gelsemium poisoning the posterior extremities show the clonic-tonic convulsions more distinctly than the anterior ones.

3. Immediately or shortly after one strychnine paroxysm, a second may follow; in gelsemium poisoning considerable time usually elapses between the single paroxysms.

4. The stage of tetanus from strychnine may last several days, that of gelsemium rarely exceeds an hour.

5. In chemical respects the two drugs present also some characteristic differences, which, under the name of Schwarz's differential reactions, are detailed in Raimondi's paper.—*Therapeutic Gazette*, Aug. 16, 1886.

An Antiseptic Dentifrice.—Dr. A. D. MacGregor, of Kirkcaldy, writes in the *Brit. Med. Journal* of July 10, 1886, as follows: "Few medical men, I suppose, have ever given a prescription for tooth-powder (such a matter is beneath their notice), and the selection of the ingredients for the various powders and pastes in vogue for the purpose of beautifying and cleansing the teeth is left entirely in the hands of those who certainly should not know better than medical men. I have frequently trespassed on this debatable ground, and recommended a particular dentifrice. In view of the extremely important part the teeth play in the economy of life, I never hesitate occasionally to inquire as to the attention they receive. A tooth-powder should possess certain characteristics: it should be antiseptic, cooling, agreeable to taste and smell, and have no injurious action on the teeth. After use, it should leave the teeth white, and a sensation of freshness and cleanliness in the mouth. As an antiseptic in this connection, nothing can displace boric acid. For years I have used the following powder, and can recommend it: Boric acid, finely powdered, 40 grs.; chlorate of potassium, 30 grs.; powdered guaiacum, 20 grs.; prepared chalk, 60 grs.; powdered carbonate of magnesium, to ℥j; otto of roses, half a drop. The boric acid in solution gets between the teeth and the edges of the gums, and there it discharges its antiseptic functions, the chlorate and guaiacum contribute their quota to the benefit of the gums and mucous membranes generally; the chalk is the insoluble powder to detach the particles of tartar which may be present, and the magnesia the more soluble soft powder which cannot harm the softest enamel."

Actinic Contrast in Photo-micrography.—Dr. George A. Piersol writes as follows in the *American Monthly Microscopical Journal*, for July, 1886:

In many cases it is expedient to prepare objects especially for photography. For such cases a very valuable adjunct will be found in the use of different colored lights produced by tinted glasses, carefully adapted to the intensity and color of the staining. The use of glass, or of solutions of a color complementary to that of the object, has been long employed in the arts in reproducing paintings. Koch, in his *Traumatic Infective Diseases*, relates his experiences with this method, but condemns it as impracticable. On account of the length of exposure and vibration "the picture does not have sharpness of outline sufficient to enable it to be of use as a substitute for a drawing, or, indeed, even as evidence of what one sees."[1]

Notwithstanding the unfavorable experience of this skilful investigator some subsequent results by this method have been most encouraging. Defrenne obtained excellent photographs of the *Bacillus tuberculosis* by means of fuchsin staining and green glass, and quite recently my own experience with this same bacterium and stain has been very gratifying. Since then a number of modifications have been tried. As a result of these experiments, the practical deductions have been reached that when the staining and thickness of the specimen are insufficient to give the necessary actinic contrast with the color of the field, we can best succeed by employing a colored glass, the tint of which will be such as to give the contrast as well as to afford light sufficiently to impress the plate where not occupied by the object. Such a color will not be the complementary one in many instances. With blue stainings the use of the complementary yellow would yield but a faint image, since the weak actinic power of the transmitted rays are insufficient to affect deeply the unoccupied parts of the field. The substitution, however, of a suitable shade of green affords sufficient contrast of the object as well as permits the passage of rays of sufficient actinic power to impress adequately the surrounding parts of the plate.

With all these colors the exposure is greatly lengthened; with a medium green it being five to seven times longer than with blue light; as, however, the normal exposure is seldom over one second, the increase has practically little disadvantage. Not only for very minute objects, as bacteria, stained with methyl-blue, under high power, but equally for very thin hæmatoxylin or carmine sections under low amplification has this green glass proved most useful. By its use it is always possible to obtain pictures, where all the merits of vigorous negatives with the beautifully sharp details alone

[1] Magnin-Sternberg. *Bacteria*; 2d ed., page 195.

obtainable from the thinnest sections are combined, and where the usual methods yield but a weak image.

These suggestions apply especially to sunlight. To those engaged in such work, who have never employed these means, the shades of green offer themselves as valuable modifications of illumination well worthy of a trial. The exact tint required—a matter of importance—must be determined for existing conditions by each manipulator.

Resolvent Solution.—Descroizilles commends as a resolvent solution for local use in strumous enlargements in children the following mixture:

Sodium chloride	40 parts
Magnesium sulphate	15 "
Tincture of iodine	1 part
Distilled water	150 parts

Compresses are saturated with this solution and applied as needed.—*L'Union Médicale*, August 3, 1886.

Final Results of Operation for Cancer of the Lip.—Interesting statistics concerning the therapeutic results of the surgery of this affection, are collected from the clinic of Bruns, Tübingen, by A. Woerner. An abstract in the *Centralblatt f. Chirurgie* states that of 305 cases operated upon at Tübingen, the affection occurred in females as compared to male patients in the relation of one to nine. The average age was 62 years. In 236 cases no mention is made as to the tobacco-smoking habits of the patients. Fifty-one were inveterate pipe-smokers. In eleven cases a trauma was the first origin; in seven cases neglected warts became the seat of the first start. In sixteen cases the upper lip was affected. Of the 305 cases 217 were operated upon by 354 different operations. Simple excision and union seemed sufficient in 224 cases; in 28 resection of the maxilla was necessary to total removal. An interesting statement is that one male patient, whose case was inoperable, and who was treated by electrolysis, developed a violent erysipelas. With the subsidence of this, the tumor had almost vanished. The man had no return and died one and a half years after from other causes. Of the 277 operated patients, recurrence of the malignant growth ensued in 111 persons; 87.2 per cent. recurred inside of a year, 128 after a year. Of the 160 cases that showed no return, 71, or 25.6 per cent., died from other causes, after an average duration of life after the operation of 8.4 years. The 89 that still lived averaged 5.8 years since the operation. Of the whole number, 160 cases, 106 lived over three years; hence the latter number certainly may be considered as permanently cured. Woerner also compares the previous reports on this subject made by Thiersch, v. Bergmann, Billroth, Kocher, etc. The sum of these observations is 866 cases. These patients show results very close to the figures of Woerner. Of the whole number of returns, 87.6 occurred within the first year. The percentage of those that survived three years without a return was 28.1 per cent., as compared with 38.2 per cent. at Bruns's clinic.

Treatment of Epilepsy.—Wildermuth, in the course of a long career at the head of an institution devoted to epileptics, has had occasion to make trial of all remedies of reputed value in epilepsy, and has finally concluded that the treatment by bromides is indicated in the majority of cases.

In combating epilepsy, or, more properly speaking, the epileptic state, Wildermuth exhibits the bromide of potassium in the initial dose of thirty grains in children, and seventy-five grains in adults. The dose is gradually augmented to one hundred and twenty grains, and, very rarely, to one hundred and fifty grains.

The bromide is given in water or milk, and its exhibition is followed by physical exercise in order to decrease the likelihood of resultant gastralgia.

Iodides and chlorides are badly borne.

When medication is suspended, it is advised that the doses be gradually and slowly decreased.

The treatment may produce disagreeable consequences, which should be met more than half-way. The dental and gingival alterations are prevented by gargles of potassium permanganate, and cutaneous eruptions by the daily administration of Fowler's solution, lukewarm baths, and inunctions of Hebra's ointment. With this ointment, also, the eruptions of bromism are treated when they appear, and when they are very rebellious he does not hesitate to use the sharp curette.

The circulatory troubles incident to the bromine treatment necessitate cessation of the medicament, administration of coffee, shower-baths to the spine, and massage of the limbs.

When patients are very susceptible to the pure bromide of potassium, the daily ingestion of a wine-bottle or less of Erlenmayer's "bromized water" is to be preferred. The formula of this is as follows:

Potassium bromide,	
Sodium bromide	āā gr. lx.
Ammonium bromide	gr. xxx.
Liquor ammonia	gt. j.
Carbonated water	ʒxx.

In recent cases and in adolescents Wildermuth employs a somewhat smaller dose of the bromides, and adds one-tenth to one-thirty-third of a grain of atropine sulphate. In desperate cases he has used the osmate of potassium, in doses of from one-seventieth of a grain to one-fourth of a grain, together with zinc oxide, according to the method of Herp.

He has seen no benefit from the use of curare or absinthe. The continuous current is chiefly of advantage in combating choreiform manifestations; the anode applied to the sternum, and the cathode to the spine. In subduing the psychical excitement, hydrotherapeutic methods have proven most useful; especially the moist pack and massage, gave favorable results in cases in which somnolence was very pronounced.

The dietetic regimen consists in the moderate use of meats, avoidance of spices, sobriety, and abstinence from tea and coffee.

The treatment of the access appears useless when the crises succeed each other rapidly. If they are more rare, he tries the wet pack, ice to the head, and a double or triple dose of bromide. Chloroform is discarded as unsafe, and chloral is reserved to combat the excitement in the intervals of the access. In cases where arrest of the heart is threatened, he commends the subcutaneous injection, in the thoracic region, of camphorated oil, up to the maximum dose of two fluidounces.—*Gazette Hebdomadaire de Médecine et de Chirurgie*, August 6, 1886.

THE MEDICAL NEWS.

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SATURDAY, AUGUST 28, 1886.

ECLAMPSIA.

THE most notable contributions which have recently appeared on this important subject are the chapter on puerperal nephritis in DR. PURDY'S excellent book on Bright's disease, and a lecture by LEYDEN, "Ueber Hydrops und Albuminurie der Schwangeren," published in the *Zeitschrift für klinische Medicin*, Bd. II., Heft 1, 1886.

An examination of these papers justifies the following conclusions:

1st. That the majority of cases of puerperal eclampsia are accompanied by albuminuria or dropsy, or both, but a certain number are unaccompanied by either.

2d. That the majority of cases are associated with and are the direct result of kidney disease.

Thus, out of 135 cases of eclampsia collected by Brummerstaedt, of which 51 were fatal, there was albuminuria in 106, or less than 80 per cent.; in 29, or more than 20 per cent., it was absent. Again, according to Schröder (*Text-Book of Midwifery*, edition of 1884), from 3 to 5 per cent. of pregnant women have albuminuria; but of women in labor a much larger proportion have it—according to Flaischlen 17 per cent., to Würst 20 per cent., and to Mörike 37 per cent.; the proportion of albumen varying greatly and being often very small. According to Rosenstein out of every 8 cases of albuminuria in pregnancy 1 has eclampsia, and according to Schröder 1 woman out of every 500 confined has convulsions. It is evidently impossible to draw any further conclusions from these statistics than that, while not every case of albuminuria in pregnancy is going to be a case of convulsions, the presence of albuminuria makes it more likely that there will be convulsions, a fact which is of great practical importance.

How is it with dropsy? Leyden very correctly says we know less of the relation between the albuminuria and the dropsy of pregnancy, although it is certain that the two do not stand in a necessary corresponding relation; and it is true, also, that anasarca is much more frequent in pregnancy than albuminuria, there being a not inconsiderable number of cases of œdema gravidarum without albuminuria, while it is equally true that albuminuria may occur without dropsy. Leyden is inclined to believe that where albuminuria and dropsy are both present, as a rule the dropsy precedes and the albuminuria follows, while Frerichs regards the albuminuria as preceding, in our opinion, rightfully, where the two conditions depend upon renal disease.

And this brings us to the second and most important of our conclusions—the relation of eclampsia to kidney disease. Both albuminuria and dropsy betoken some obstruction to the circulation in the kidney, and very early it was suspected that the kidneys were at fault. Such suspicion was soon justified by the results of autopsies, first by Rayer but subsequently by many others. The precise relation of the two conditions and the proportion of cases of albuminuria or dropsy, or both, in pregnancy, to alterations in the kidney, is still unsettled in the minds of many.

With a view of getting at this a little more precisely, let us return for a moment to the question of the relation of albuminuria and dropsy to renal disease. It has been said that both point to a derangement of circulation in the kidney, but this is not true of both in equal degree. We may say of albuminuria that in all cases except where it is due to pus from some part of the genito-urinary mucous surface, it is the result of such deranged circulation. But not so with dropsy. It is well known that we may have dropsy from obstruction to the circulation elsewhere than in the kidney, and such obstruction may occur in pregnancy, indeed it is much more prone to occur in pregnancy than in the non-pregnant state, by reason of the pressure exerted by the gravid uterus. This is a very different thing from saying that the renal changes are the result of the pressure exerted by the gravid uterus, which we do not at all believe. As the result of our belief, however, we regard dropsy without albuminuria in pregnancy as a much less serious symptom than either albuminuria alone or dropsy with albuminuria. Indeed, we may go farther and say that, where there is dropsy in pregnancy without albuminuria, we may conclude that the kidneys are not seriously involved, and that the danger of eclampsia is less, so well assured do we feel that, where there is renal disease in connection with pregnancy, the albuminuria must be pres-

ent either alone or in connection with dropsy. It is true that Bright's disease may occur in the non-pregnant state accompanied by very small albuminuria, or even without albuminuria. But in these forms of kidney disease the process is a very slow one as compared with Bright's disease the result of pregnancy, besides being, as a rule, of a different nature—being interstitial from the beginning; although some observations of Leyden, presently to be referred to, go to show that cirrhosis of the kidney may also result from pregnancy.

Reiterating that by far the largest proportion of cases of eclampsia are the result of renal disease, are we able to foretell the precise alterations—in other words, the form of Bright's disease—present? The most recent studies seem to necessitate some change of view as to the form of kidney disease present. Dr. Purdy gets over it very nicely by calling the disease puerperal nephritis, and his account of the morbid anatomy is very brief. For the purpose of treatment perhaps it is not necessary to be more precise. But the demands of modern medicine require us to be as precise as possible. Both Rosenstein and Bartels regard the disease as an acute parenchymatous nephritis. Undoubtedly many cases of puerperal nephritis are recognized in the stage of acute parenchymatous nephritis. In such there is blood in the urine, and blood casts, and much albumen. But at the stage at which death occurs and autopsies are obtained, it is more frequently the second stage of the disease which is found. Dr. Purdy correctly says: "Hemorrhagic extravasations are less frequent and pronounced than in other forms of acute nephritis, especially the scarlatinal form; yet patches of migrated blood corpuscles may sometimes be seen between the convoluted tubules and about the glomeruli. Epithelial cells lining the convoluted tubules are seen to be swollen, and in some places they have become fatty." Three out of four of Leyden's autopsies discovered fatty degeneration of the cells lining the tubes of the cortex—in a word, the second stage of chronic parenchymatous nephritis. The bloodvessels and interstitial tissue were intact. Leyden reports two cases with a view to showing that the Bright's disease of pregnancy may also be represented by the granular kidney. One case is based on the clinical history, which certainly coincides with that of granular kidney in general, the other is confirmed by autopsy. The pregnancy was normal, except that there was much sick stomach, until eight days before confinement, when swelling of the feet and legs with scanty urine was noted. The labor was natural. Eight days afterward, on rising, the patient noticed her feet swollen, but two weeks later the swelling had disappeared. Then followed a period of apparent health, except that the patient was weak. Then followed morning sickness, headache, weakness, retinitis albuminurica, and the diagnosis of contracted kidney by the oculist consulted. Convulsions finally set in, and the next day the patient died, seven months after confinement. Might not both of these have been cases of previously existing granular kidney, or of the disease developed from its usual causes?

A most important question naturally succeeds the discussion of our second conclusion: Is eclampsia always associated with or dependent on kidney disease? In determining the correct answer to this question, there are many sources of error. In the first place, all negative observations prior to the careful use of the microscope, which has characterized the practice of the last twenty years, must be disregarded, as well as all negative observations of a later date based on other than microscopic examination of the kidneys. We fear this must be the fate of the 106 cases of eclampsia collected by Ingerslev, cited by Schröder, in none of which was there albumen, while at the autopsies the kidneys were found entirely normal. Cautiously, too, should be regarded a case cited by Leyden, as reported by Schulz in an inaugural thesis in 1867, in which the kidneys were found anatomically intact. But Leyden himself, in the paper referred to, says that, in a single case of fatal eclampsia from which the kidneys were sent to him for examination, he found nothing abnormal; and says also "the fact that eclampsia may go on to a fatal issue without the kidneys presenting any anatomically demonstrable alterations, is equally as true as that eclampsia may occur without albuminuria."

With such statements from such authorities we dare not, perhaps, deny the possibility of the occurrence of fatal eclampsia without accompanying Bright's disease, but we feel justified in asserting, emphatically, that such cases must not only be exceedingly rare, but even impossible where albuminuria is present, and, further, that to base any therapeutics on the supposition that such is the case, is almost criminal.

Such rare cases may be of the following kind. In the first place, there can be no doubt that we sometimes meet cases of puerperal convulsions without albuminuria or renal involvement which are analogous to the convulsions of teething or gastric irritation in childhood. They occur most frequently in primiparæ, and often in prolonged labors, where the uterine tissues have been teased to such an extent by the pressure which has been exerted upon them, that the nerve centres with which they are in connection become excitable and explode in convulsions. It is not unlikely, too, that the nerve-centres of pregnant women are like those of children, physiologically more excitable than in the normal state. Such

cases are apt to have only one or, at most, two convulsions. It is not impossible, also, that occasionally one of these may terminate fatally, just as reflex convulsions from other causes terminate fatally. But, certainly, such terminations are exceedingly rare in this class of cases. Further, the whole category is so small that, in treatment, their special causes may be ignored, and the cases treated by bleeding and anæsthesia as though they were uræmic.

On the importance of the diagnosis by a study of the urine of an existing Bright's disease in a pregnant woman before labor sets in, it would hardly seem necessary to say anything at the present day, but for the fact that women continue to be sacrificed to neglect of such examinations, who might have been saved by a treatment directed to the complication.

FARADIZATION IN EXTRAUTERINE PREGNANCY.

The questions raised by the letter of Mr. Tait in our issue of August 14th, give indication of exciting no little controversy; and we cannot refrain from thinking that he is a bold man to challenge so many obstetricians in this country, and so many in Europe, some of whom are acknowledged to be among the most distinguished and able in the profession. These gentlemen have asserted that they have made the diagnosis of extrauterine pregnancy prior to rupture of the gestation cyst, and have destroyed the life of the embryo or fœtus, thereby arresting the pregnancy. Now it is true that in the great majority of cases the anatomico-pathologic proof is wanting, for, by electricity in this country, and by the evacuation of the cyst or by the injection of morphia in Europe, the pregnancy is arrested without detriment to the mother, and so there is no opportunity for an autopsy to verify the diagnosis. But there are five recorded cases of the diagnosis of extrauterine pregnancy during the life of the embryo or fœtus which give conclusive proofs that Mr. Tait is mistaken in his view, for these cases were unquestionably correctly diagnosticated at a period when, according to his statement, a diagnosis is impossible. In 1874, Tarnier diagnosticated a case of extrauterine pregnancy which had advanced to between five and six months; he destroyed the life of the fœtus by morphia, and the condition of the patient subsequently requiring laparotomy, the diagnosis was confirmed. Gaillard Thomas and the late Albert H. Smith have each done elytrotomy in cases diagnosticated as extrauterine pregnancy, and the correctness of their opinion verified. Veit (*Zeitschr. für Geb. und Gyn.*, 1884 and 1885) has twice done laparotomy in cases of tubal gestation about the third month; both women recovered. Here are five very strong and stubborn facts, and until they are disproved Mr. Tait's assertion falls to the ground.

There is another of his statements which is at variance with demonstrated facts according to most authorities, to wit, that all extrauterine pregnancies are tubal. But the discussion occupies a large enough field for the present while limited to the first assertion.

TAKING THE TEMPERATURE IN CHILDREN.

A very ingenious and simple method has been proposed by Filatoff, in the *Archiv für Kinderheilkunde*, vol. vii. part 3, for expediting the troublesome process of obtaining the temperature in children.

He recommends that by the use of a previously warmed thermometer the fall, and not, as is usual, the rise of the mercury be observed. In from one to two minutes the column is found to stop at a point which very closely approximates to the actual temperature of the patient. It is found that the higher the fever, the smaller is the error. Thus, at temperatures of from 103.1° to 104° F., the error does not exceed 0.2° F., while for lower temperatures it may reach 0.5° F. It is, of course, evident that a certain amount of care and skill is requisite in order that the precursory warming of the thermometer be neither insufficient nor excessive.

REVIEWS.

Transactions of the American Gynecological Society for the Year 1885. Vol. 10. 8vo. pp. 357. New York: D. Appleton & Co., 1886.

The Society met in Washington, D. C., on September 22, 23, and 24, 1885, twenty-four out of the fifty-four active Fellows being present. Papers were presented by twelve Fellows, and by three candidates for election; we have only space enough to glance at a few of these. The President's annual address was entitled "Two Rare Cases in Abdominal Surgery." In this Prof. William T. Howard, of Baltimore, takes up particularly the difficulties in the differential diagnosis of morbid growths in the abdomen. The paper elicited an active discussion, Fellows of large experience admitting the great difficulties and uncertainties of abdominal diagnosis.

Dr. Henry J. Garrigues, of New York, presented an important paper upon "Puerperal Diphtheria," with a record of twenty-seven cases, only five of which terminated fatally. Dr. Garrigues has introduced several valuable prophylactic measures in the management of puerperal women in hospitals, of which his antiseptic pad is regarded as having greatly lessened their mortality, preventing the entrance of germs into the vulva and keeping the wards in a cleanly state.

Prof. Joseph Taber Johnson, of Washington, D. C., introduced the subject of oöphrectomy for reflex disturbances of the nervous system, by reporting four cases, three of which ended in entire cure and one died. As sixteen pages of the volume are taken up with the discussion, it will be seen that the applicability of Battey's operation is still upon trial.

Prof. Thaddeus A. Reamy, of Cincinnati, explained

his method of supporting the perineum by means of a towel carried around the buttocks and spread out over the seat with its anterior edge on a level with the fourchette, and its ends held tense, during each pain, by two assistants.

Dr. Edward W. Jenks, of Detroit, reported a fatal Cæsarean section, performed by him in Canada on February 27, 1885, after a labor of twenty-four hours, the fœtus being dead, and the forceps and craniotomy having failed. The death in this case would appear to be largely due to the woman having got out of bed upon the floor during her sleep, producing a shock from which she never rallied. In the United States and Canada there have been twenty-nine fatal Cæsarean operations out of thirty-six in the last ten years.

Prof. William Goodell of Philadelphia, reported three cases of "Inflammation of the Parotid Glands following Operations on the Female Genital Organs," in which there were no evidences of septic poisoning. The operations were ovariotomies; the parotitis appeared to be due to metastasis and closely resembled mumps, except that its course was longer, and there was scarcely any rise of temperature.

Dr. Henry F. Campbell presented the subject of the "Genupectoral Posture" in a paper of seventy-five pages, with nineteen illustrations. The reputation of the Society is well sustained, but an addition of new Fellows would be of advantage.

SOCIETY PROCEEDINGS.

CANADIAN MEDICAL ASSOCIATION.

Nineteenth Annual Meeting, held at Quebec, August 18 and 19, 1886.

(Specially reported for THE MEDICAL NEWS.)

THE nineteenth annual meeting of this Association was held in Laval University, Quebec, on the 18th and 19th of August. The meeting was opened, in the absence of the President, Dr. William Osler, by the Hon. Dr. Sullivan, of Kingston.

After routine business and the presentation of the reports of the various Sections, the PRESIDENT-ELECT, DR. T. K. HOLMES, of Chatham, Ont., was introduced, and delivered an address. After referring to the historic and romantic associations surrounding their place of meeting, he spoke of the influence exercised on medicine by the science of biology and its handmaidens, physiology and pathology. He recommended that the preliminary examination should have a more scientific complexion, and that biology should be added to the list of subjects required for examination. It is most important that the student, before entering on the study of medicine, should have some knowledge of minute organisms. He also alluded to the great importance of endowments in connection with the more purely scientific subjects taught in medical schools. Men holding these chairs could then be properly paid, and would be able to undertake original investigation free from the anxieties of practice. He advised practitioners to belong to local societies, and to keep careful notes of all the cases coming under their observation. In this connection, he observed that it is not necessary for a man to practise in a large centre, or to be connected with a school, in order to do work. Jenner, McDowell, and Koch have been country practitioners. In conclusion, he advised the establishment of lectureships in connection with the Association, similar to those existing in the old world; and after hoping that the meeting would be a successful one, he predicted great things for the medical future of Canada.

OFFICERS ELECTED FOR NEXT YEAR:

President.—Dr. J. E. Graham, of Toronto.

Vice-Presidents.—For Quebec, Dr. Russell; *for Ontario*, Dr. Dupuis; *for Nova Scotia*, Dr. Wickwire; *for New Brunswick*, Dr. Currie; *for Manitoba*, Dr. Crowther.

Local Secretaries.—For Quebec, Dr. J. Bell; *for Ontario*, Dr. McKeough, *for Nova Scotia*, Dr. Trueman; *for New Brunswick*, Dr. Lunam; *for Manitoba*, Dr. Kerr.

Place of Next Meeting.—Hamilton; Chairman of Committee of Arrangements, Dr. Malloch.

SURGICAL SECTION.

WEDNESDAY, AUGUST 18TH.

DR. GEORGE E. FENWICK, OF MONTREAL, IN THE CHAIR.

DR. DESJARDINS, of Montreal, read a paper on

KERATOSCOPY AS A MEANS OF DIAGNOSIS IN ASTIGMATISM.

After defining the term astigmatism, he said that errors of refraction affect the vision injuriously, although the optic nerve be healthy. It was formerly supposed that the fault was in the lens, but it is now known to be due (as was first pointed out by Donders) to the curves of the cornea. The lens, according to later investigators, partakes of the same deformities as the cornea. Accommodation is not without influence on refraction. After mentioning that corneal anomalies are detected by the keratoscope, Dr. Desjardins exhibited and described an instrument of simple construction made by de Wecker and Masillon, by which the meridians and amount of astigmatism can easily be determined. Many cases of slight astigmatism can be rapidly detected and suitable glasses prescribed. By the aid of this instrument, one scarcely needs to submit the patient to a subjective examination, and for this reason the author finds it especially useful in children.

DR. JAMES BELL, of Montreal, read a paper on

TRACHEOTOMY IN MEMBRANOUS LARYNGITIS,

in which he advocated dispensing with the tube in the after-treatment of tracheotomy. He said that the methods of stitching the cut edge of the tracheal to the edge of the neck wound and the nose of the canula had proved of but little benefit in actual practice.

He preferred late to early operations in membranous laryngitis for the following reasons, viz.: (1) If patient were operated on early, many would be operated on unnecessarily; (2) Extension of membrane takes place more rapidly after tracheotomy; (3) If the obstruction is not rapidly produced, membrane is separated and expelled. The recoveries after early operations were 25–33 per cent.; after late operations, 5–10 per cent. A greater percentage recover without operation. He next entered on the question as to whether the extension of

the membrane is due to general or local causes, and thought that the weight of opinion is that extension is due to purely local causes, and gave a number of cases illustrating this point. After discussing the subject as to whether diphtheria is or is not primarily a local disease, he gave his reasons for not liking the tube in tracheotomy: (1) The tube never accurately fits; (2) When the tube is in place, the incisions into the trachea cannot be kept under observation; (3) Occasionally the tube, from not being in the middle line, and being left too long in the trachea, ulcerates through, and an artery may be opened; (4) When the tube is in the trachea, there is difficulty in expelling through it pieces of membrane; (5) The tube causes sometimes exuberant granulations and warty growths. In place of the tube, Dr. Bell has devised an instrument which he thinks does away with the objections to the tube. It consists of a pair of "clips," which catch the edge of the trachea and hold it apart. They are held in position by a tape which goes round the neck. He had experimented with the clips in a number of dogs, and found that they held well and that no ill results followed.

In speaking of the place of operation, Dr. Bell stated that he preferred the low operation, because there was more room, and also because, by it, we get further away from the disease. In the after-treatment of cases in which the "clips" are used, he withdraws the mucus, etc., from the trachea by means of a glass pipette. He said he did not believe in the close camp bed which is now so often used, but preferred a free current of air. After operation he plugs the trachea or larynx above the wound with antiseptic sponge; this absorbs the discharges and helps to localize the membrane. Over the wound he keeps a piece of gauze, and he occasionally introduces vaseline into the trachea. When the tube is used, after two or three days the breathing becomes dry, and the end of the tube becomes coated with inspissated mucus; below this, in the trachea, is a cone of dried exudation, which helps to block up the passage.

Dr. Bell gave the histories of two cases of diphtheria in which he had operated and used his "clips." One case died, and the other—aged twenty-five months—recovered. In nine cases of tracheotomy in which he has used the tube, all, with one exception, died.

He summed up by saying that the excessive mortality after diphtheria was due to defects in the after-treatment. The presence of a tube is a source of irritation and prevents the application of remedies to the trachea itself.

Dr. A. L. Smith, in the discussion which followed, said that when house surgeon to a children's hospital in London, he had a large experience with cases of tracheotomy. He believes that the "clip," introduced by Dr. Bell, will prove of the greatest possible benefit and will in all probability reduce the mortality after the operation. He had seen one death from ulceration of the tube into a large vein.

Dr. Kerr, of Winnipeg, said that he had considerable experience in tracheotomy whilst in Nova Scotia. He had performed it twelve times, and never had a good result. He did not think that tracheotomy is a good operation, and had seen most desperate cases recover without it. If Dr. Bell's treatment without a tube reduced the mortality, it would be a great gain. Dr. Kerr went on to say that the after-treatment of tracheotomy is always a source of anxiety; the tube is apt to get displaced during fits of coughing. In his last case he dispensed with a tube and stitched the edge of the cut trachea to the edge of the wound, as recommended by Post. He did not like this method, for when the patient's chin was depressed, the opening closed. He thought that with Dr. Bell's instrument he could do better. As to the question of the general or local origin of diphtheria, it was too large a subject to discuss at the present time. His last tracheotomy case lived three weeks and died of paralysis, so that it is not always the extension of the membrane that kills after tracheotomy, and the best after-treatment will fail to produce a good result. He was very doubtful about the good that would result from plugging the trachea above the wound.

Dr. F. J. Shepherd said that he had performed tracheotomy a number of times both in hospital and private practice. His first ten or a dozen cases were all fatal, but during the last two and a half years he had performed tracheotomy in private practice sixteen times, and had had five recoveries. In hospital practice his results were not so good. He thought that the kind of instrument used did not matter much; it was important that the wound should be kept aseptic. He removed the tube as early as possible, never later than the fifth day, in one successful case he removed the tube on the third day; they were all cases of diphtheria. He preferred the low operation because the trachea is opened at a greater distance from the disease, there is more room, and it is not necessary to cut the cricoid cartilage. In the high operation division of the cricoid had to be frequently undertaken and often resulted in necrosis. Again, stenosis more frequently occurred after the high operation. Dr. Shepherd believed that after operation it was useful to have a warm room (75°–80° F.), and that the atmosphere should be saturated with moisture. He always used a croup or closed bed, and the steam of the kettle was conveyed into it by a huge spout. The inner tube was removed every hour and the outer one on the second day, lime-water was occasionally dropped into the tube. He thought that the tube favored expulsion of membrane. With regard to the antiseptic plugging of the trachea, he did not think it of much benefit. Very often the membrane extended, at the time of the operation, below the wound, and if it did not, the continuity of the mucous membrane could not be interfered with. He had never seen the conical plug in the trachea described by Dr. Bell. All the cases of death after tracheotomy he had seen had been due to extension of the membrane. Theoretically Dr. Bell's instrument was perfect, but it remained to be seen what it would do in practice.

Dr. Russell, of Quebec, had not seen half a dozen cases of diphtheria in twelve years, but during the last year he had seen a great many cases of membranous croup. He thought this disease was more fatal than diphtheria. He was formerly opposed to tracheotomy, but now thought early operation advisable; if the operation did not cure, it always relieved. He had performed tracheotomy six times with two recoveries. He thought Dr. Bell's instrument was a most ingenious one, and likely to prove very useful. In the after-treatment he was strongly in favor of using lime-water spray.

DR. FENWICK, of Montreal, said that he preferred the high to the low operation. Dr. Bell's instrument appeared to answer very well. Dr. Marshall Hall, many years ago, devised a somewhat similar instrument made of wire. He had seen one of Dr. Bell's cases treated with the "clips," and formed a most favorable opinion of the instrument.

DR. FENWICK, of Montreal, read a paper on

TREATMENT OF TUBERCULOUS GLANDS OF THE NECK.

He believed that scrofulous glands are intimately connected with tubercle. After giving a sketch of the history of tubercle and Koch's discovery of the tubercle bacillus, he said that there must be some predisposing condition in the individual so that he can contract tubercle—the proper soil must be present. The glands of the neck are specially liable to infection, especially the submaxillary and those over the large vessels. Enlargement is rarely single and occurs generally at first on one side of the neck only. Often there are no external signs of softening of the gland, but when the glands break down and open externally indolent ulcers and sinuses are left. The disease generally first shows itself in a single gland and then spreads to other parts; very little is known of the mode of entrance of the tubercle bacillus. In scrofulous enlargement of the glands of the neck the author strongly advised early removal of enlarged glands. After removal the general health of the individual improves; if they are left, the patient runs the risk of general tuberculosis, and if he recovers it is with impaired health and a number of disfiguring scars on the neck. The author preferred removal to laying open and scraping out the gland or the cautery puncture of Mr. Treves. He related a number of cases in which he had removed large numbers of glands from the neck. In his first case, which was operated on in 1873, he removed some half dozen glands from the neck beneath the sterno-mastoid; the scar was now hardly to be seen. Dr. Fenwick showed a number of photographs of cases, before and after operation, where the results were most admirable, the cicatrices being hardly perceptible.

DR. KERR, of Winnipeg, said that if we accepted the principle of the identity of scrofula and tubercle much confusion would be removed. He was not satisfied with the results of operations and did not now operate so often as formerly; he found the operation not only very tedious but difficult and dangerous, and the results were not always so good as represented. Dr. Alexander, of Liverpool, who formerly operated some twelve years ago very frequently in these cases, has now given up the operation.

DR. SHEPHERD, of Montreal, confessed that the results of operation were not always so perfect as were described by the enthusiastic advocates of the operation, but in many cases the results are entirely satisfactory. Occasionally there are high temperatures after operation; sometimes attacks of cellulitis. He had operated in a good many cases, and had removed as many as twenty to thirty glands at a time. Apparently solid glands not infrequently come to pieces during removal, and are found to be quite soft in the centre. These conditions always complicate the operation. After incising the deep fascia, he prefers removing the glands with the fingers, and an occasional cut with a knife. He has never had any accident attending the operation. Although he has had no experience with Treves's cautery puncture, he does not think it suitable for glands deeply placed. In sinuses and scrofulous ulcers, he has had most excellent results from scraping out the parts with Volkmann's spoon.

DR. TRENHOLME, of Montreal, read a paper on

SOME DETAILS OF UTERINE AND OVARIAN OPERATIONS.

He said the instruments used in these operations need not be numerous or complicated. After describing the usual precautions that should be taken regarding the cleanliness of hands, sponges, and instruments, he said that he prefers No. 1–20 shoemakers' thread to any other form of ligature. Before use the thread should be immersed for twenty-four hours in pure carbolic acid, and not put into water at all. In closing the abdominal wound, he uses silver wire for the deep sutures and horsehair for the superficial. He laid great stress on the importance of not enclosing any muscular tissue in the suture. The incision should be midway between the umbilicus and pubis, and should not extend to within one and a half inches of the pubis. He advised short incisions of two to two and a half inches. Muscle should never be cut in the incision, as it gave great trouble afterward.

The pedicle of the tumor should be ligated in small segments, and the large vessels should be ligatured separately and the ligature cut short. The cavity of the abdomen should be thoroughly cleansed with sponges, and drained when necessary. He objects to abdominal bandages, and has only used them after the removal of the largest tumors. He allows his patient after the operation to move freely in bed; this favors the reposition of the bowels. In uterine fibroids, when large, he always divides the mass in the median line, then each half is enucleated. The stump should be cut in shape of a V, and the edges brought together with a running suture and quilted with the shoemaker's stitch. He has found linseed-tea enemata of great service after operation; fomentations to the abdomen were also very beneficial. No after medicinal treatment is needed, except when there is vomiting; in this he has found sipping hot water useful, and also ipecacuanha in homœopathic doses. He uses the third dilution.

DR. MACFARLANE, of Toronto, would have liked to hear Dr. Trenholme say more about dietetics. In his operation he had found vomiting to be a very troublesome complication; warm water with a flavoring of brandy he had found of great service in these cases, also frequent small doses of epsom salts as recommended by Lawson Tait. He never gave any medicine at all when there was any threatening of peritoneal trouble. He never used drainage unless the adhesions were extensive.

DR. SHERMAN, of Ogdensburg, would like to have heard more details regarding the preparation of the patient, also as to whether he referred, when speaking of fibroids, to extra- or intra-mural growths.

DR. MACDONALD, of Wingham, Ontario, would like to have heard more details as to the closure of the wound and also as to the value of the clamp in securing the pedicle and whether operation for ovarian tumors should be performed early.

DR. KERR, of Winnipeg, had seen hernia follow the

operation, due to failure of union in central portions of wound. He would like to know why Dr. Trenholme objected to including muscle in his sutures.

Dr. Shepherd, of Montreal, thought that wounds of the abdomen are much the same as wounds of other parts, and that abdominal surgeons make a great ado about their special methods of healing this abdominal incision. General surgeons who are operating every day in every part of the body have no fear of including muscle in their sutures. He did not understand why an abdominal wound should heal so differently from wounds in other parts. So far as he himself was concerned, in performing abdominal section he treated his incision as an ordinary wound. He used silk or catgut sutures and passed them through the whole thickness of the wall of the abdomen; union invariably took place by first intention. Every gynecologist thinks it incumbent upon him to have some special mode of treatment of the abdominal incision, and seems to think that general surgical principles are not applicable to it. Dr. Shepherd had not much faith in ipecac used in the third dilution.

Dr. Fenwick said that he had operated a number of times for ovarian tumors with fair success. He agreed with the remarks of the last speaker. He always used silk sutures and objected to horsehair because knots made in it did not hold well. In treating the pedicle he first clamped it and then tied all the large vessels; afterward, he tied the pedicle with the Staffordshire knot and removed the clamp. He had used hot water occasionally to cleanse the abdomen.

Dr. Trenholme, in reply, said he spoke of interstitial fibroids. He formed the pedicle out of the labial borders of the uterus in such a way that he left the broad ligaments to sustain the pelvic viscera. He used the shoemaker's stitch to secure primary union. With regard to the external wound, he thought that the conditions found in the abdominal cavity existed nowhere else. It is of the greatest importance to secure primary union so that there shall be no subsequent hernia. For vomiting he used hot water over the wound, and ipecac in minute doses. In preparing the patient he avoided purgatives as much as possible. In cold weather he kept the extremities of the patient wrapped up in cotton-wool.

Dr. Shepherd, of Montreal, next read a paper on

Excision of the Tarsus in Tuberculous Disease of the Bone.

He commenced by saying that formerly when there was carious disease of the bones of the foot the only resource was amputation, but with the advent of antiseptic surgery and the establishment of conservative principles of treatment, other methods of procedure have been adopted with success.

In cases of tuberculous and carious disease of bones the necessity for amputation is not immediate, and it is the duty of the surgeon to endeavor first to remove the local disease before sacrificing the foot. It is not necessary to perform a Hey's, Chopart's, or Syme's amputation in these cases, but merely to remove all the disease, however extensive. The reader of the paper illustrated this principle by giving the histories of several cases. In one case, where there was disease of both feet, he removed on the right foot the cuneiform, scaphoid, cuboid, and bases of the metatarsal bones, and on the left the lower end of the tibia, astragalus, part of the os calcis, the scaphoid, and cuboid. The result was excellent, and the patient, a girl, aged seventeen, was able to walk about comfortably. In children it is often sufficient to remove the diseased portion with a Volkmann's spoon, and in them amputation is hardly ever required.

Dr. Macfarlane, of Toronto, had followed out the principle advocated by the reader of the paper for years. He believed it is the proper method of treatment and should be extended to caries of the spine. In dressing the wound left after excising tarsal bones he never stuffed the wound with anything, but placed the foot in a good position and left the rest to nature.

Dr. Dupuis, of Kingston, said he recently had a case of disease of all the tarsal bones in which he performed amputation; afterward the tibia necrosed and he had to reamputate. He also reported a case of frost-bite in which he had removed the greater part of the tarsus.

Dr. Holmes, of Chatham, remarked that Dr. Shepherd's paper was a good exemplification of conservative surgery. He had several times excised the ankle-joint with the best results.

Dr. Kerr, of Winnipeg, said that patients, after operation, should not be allowed to walk about too soon, as they were apt to have a splay foot. He did not believe in leaving the wound to nature altogether, but preferred keeping it in an aseptic condition.

Dr. Russell, of Quebec, also insisted that the wound should be carefully protected and that antiseptic dressings should be applied. If the wound were left to nature, it would soon become putrid and all the dangers incident to such a condition would be incurred.

Dr. Fenwick said he could mention a number of cases in which he had resected the tarsus with the happiest results. He related the case of a gentleman (a medical man) who had been wounded at the battle of the Alma, and had carried the bullet in his heel for nearly thirty years. The os calcis was trephined, and the bullet removed, with result of a rapid closure of the cavity and a useful foot.

Dr. Kerr, of Winnipeg, read a paper on the

Evacuation of an Abdominal Hydatid Cyst.

The patient was an Icelander, who came into the Winnipeg Hospital last winter with a large abdominal tumor. From the history, and as the result of exploratory puncture, the attending physician, Dr. Whiteford, made the diagnosis of hydatid cyst, and handed the case over to Dr. Kerr, for operation. The operation was performed in two stages, as recommended by Volkmann. A cut was first made down to the growth, and six days after it was incised. To open the cyst, he had to cut through two inches of the liver. The cyst was then emptied, and washed out with a solution of iodine. The patient did well, and went home in two months. He remarked that these are rare cases. Up to 1880, only 155 cases have been reported. This is the second case that has been seen in the University Hospital. The other patient was operated on, but died on the table.

Dr. Eccles, of London, Ont., related the history of a case which had been treated a year ago in the London Hospital.

THURSDAY, AUGUST 19TH.

DR. KERR reported two cases of

GUNSHOT WOUND OF THE HIP-JOINT.

Both cases were caused by the accidental discharge of small shot. The soft parts were much torn, the trochanters in both cases were split and the joints laid freely open. In the first case the patient was not seen till three weeks after the accident, and had had no treatment; his condition was deplorable. The whole wound was in a sloughy condition, and horribly fetid. The patient was in a septic condition. The wound was thoroughly cleansed, the sphacelated portions freely excised, and the wound irrigated and packed with iodoform gauze; an anterior wire splint was also applied. The improvement at first was marked, but the patient died of septicæmia and exhaustion in a short time. The second case was seen immediately after the accident; the wound was treated in the same way, and the limb fixed in an anterior Smith's splint; a posterior splint was also employed, so that immobility was secured, and recovery with a useful limb resulted. Dr. Kerr referred to other methods of treatment, viz., excision and amputation. In these cases the mortality was high. He brought these cases before the Section in order to show what could be done by conservative methods in such cases.

DR. CLARKE, of Toronto, said that a number of cases of gunshot injuries of the hip were reported in the *Surgical History of the American Rebellion*. He had seen several cases treated when with the Federal army in Virginia. They were treated under canvas, and did well.

Drs. Russell, Fenwick, and Shepherd also joined in the discussion.

DR. BULLER, of Montreal, read a paper on

THE TREATMENT OF ACUTE PURULENT OPHTHALMIA.

He remarked that eyes are now seldom lost in these cases. Some use hot applications, others cold; some use astringents, others do not; some use antiseptics, others rely on frequent and thorough washings. All are agreed on the necessity of frequently cleansing the diseased eyes. Many remedies are used, as quinine, boracic acid, corrosive sublimate, etc. The antiseptic treatment is still on trial. Solutions used as germicides must be strong, weak solutions are of little value as antiseptics. He had lately treated three cases of acute gonorrhœal ophthalmia. He first used boracic acid and afterward a solution of corrosive sublimate, the latter in the strength of 1 : 2000 without improvement, but the application of a solution of 1 : 1000 was followed by immediate and marked improvement. The patient was discharged cured in twenty-four days. In the other case the patient was a child, aged three years, with acute vaginitis; under similar treatment patient rapidly recovered.

In the third case, also one of gonorrhœal ophthalmia, there was sloughing of the cornea. He treated it by hot fomentations and washes of boracic acid and sublimate solution used warm. Improvement immediately followed, the slough separated and a clean ulcer was left which soon healed.

Dr. Buller thinks that in general practice a rigid cleanliness is not sufficiently carried out. With regard to cold applications, he thinks they are the best, but whilst applying them the cornea should be closely watched; if there is any cloudiness, hot applications should immediately replace the cold, and the cornea will be saved.

Drs. Smith, Russell, and Fenwick took part in the discussion which followed.

DR. SHEPHERD, of Montreal, read the notes of a case of

AINHUM,

which he had treated in the Montreal General Hospital. The disease affected the little toe of the right foot of a negro, æt. forty-seven, born in North Carolina. The little toe became affected some six years before. He first noticed a small ulcer on the digito-plantar fold, then a constriction surrounded the toe at this point which gradually deepened. The toe was much larger than normal. He suffered greatly when walking. The toe was amputated and on dissection appeared to consist of much thickened skin and fibrous tissue. The bones of the toe were much atrophied and the joint had disappeared; the proximal phalanx looked somewhat like a claw. The reader of the paper then gave a short sketch of the history of the disease, saying it was first accurately described by Dr. Silva Lima, of Brazil, that it was a disease confined to the dark races, and was more common in some families and more in men than women. It sometimes affects the fingers and even limbs. The disease, if left to itself, lasts about ten years and ends by amputating the member affected. The word "ainhum" is a negro word, and means "to saw."

DR. FENWICK, of Montreal, reported a case of

AMPUTATION AT THE SHOULDER-JOINT FOR MYELO-SARCOMA OF THE ARM.

Patient, a woman, aged forty-seven years, seven months pregnant, came to Montreal General Hospital in the spring of the present year, with a large ulcerated tumor a little below the shoulder of the right arm, and a smaller tumor near the biceps. Two years ago she had received a blow, and within three weeks perceived a small lump at the site of injury. It grew rapidly and was removed. She was told that it was a fatty tumor. It soon returned, and this time plasters were applied by a "cancer doctor," which burnt the tumor, and caused the ulcerated appearance which was seen when admitted to hospital. Dr. Fenwick amputated the arm at the shoulder-joint, and patient did remarkably well, never having a temperature higher than 99° F. On examination, the tumor proved to be a myeloid sarcoma. This was the first case Dr. Fenwick had seen in which the myeloid tumor first affected the tissues external to the bone and periosteum.

DR. A. LAPTHORN-SMITH read a paper on

ALEXANDER'S OPERATION, AND THE TREATMENT OF DISPLACEMENTS OF THE UTERUS.

After describing the operation minutely, and also giving a discourse on the anatomy of the parts, Dr. Smith went on to say that the round ligaments are really muscles, and are not in a state of tension, except during coition. They are the homologues of the cremaster muscle in the male. Dr. Smith considered that the risks of the operation are great, and that it is not a justifiable one, except in extreme cases, and

when performed did not permanently cure displacements of the uterus. He prophesied that it would soon fall into disuse. The author said that displacements of the womb could be corrected by lessening congestion, by keeping the liver clear and the lower bowel empty. The paper was illustrated by diagrams and tables.

Dr. Trenholme agreed with Dr. Smith that the operation was one that would soon be known only in history. He had operated once, but had failed to find the ligament. He himself, many years ago, suggested a similar operation.

Dr. Shepherd had frequently dissected the round ligament, and had performed operations on the dead subject. The uterus could be easily elevated by pulling on the ligaments. He did not think the fact that a few muscular fibres had been found on the ligament proves that it is now in active use as a muscle; it is, rather, a fœtal remnant of the ligament of the Wolffian body, and the homologue of the gubernaculum testis of the male.

Dr. Ahern, of Quebec, said that the round ligament is frequently abnormal, and that at its insertion is often much atrophied. In cases where the uterus is fixed, tightening it will not correct displacements.

The Section then adjourned.

CORRESPONDENCE.

WESTERN DRESSED BEEF.

To the Editor of The Medical News,

Sir: Possibly it might be of interest to the readers of The Medical News to hear something on the subject of a healthy beef supply.

I have been spending some time on cattle ranches of the Dakota Bad Lands, and became particularly interested in the results obtained by the Northern Pacific Refrigerator Car Co. Its president, the Marquis de Mores, has planned most skilfully, after years of practical study, a very complete system of killing and packing beef on the cattle range, and delivering it in perfect condition to the retail shops of the Company in New York. From a description of his methods it can be seen how well the element of healthfulness is preserved to the product. Others are following similar plans to the great gain of the consumer.

The question how to get clean meat—meat free from the many evil effects incident to transportation—seems to be solved by killing and dressing the beef in or near its natural home, and sending it direct to the shops. The grave importance of this is awakening much wholesome discussion among thinking people, and should be especially considered by the teachers of preventive medicine.

I need not enlarge upon the manifold opportunities for disease and injury to live cattle during transit. These are obviously many, and certain to occur, varied by accidents and the weather. In transit to the Eastern market cattle are upon the train for about ten days, huddled together as closely as possible, terrified, ill fed, consumed with thirst and fatigue. The gross shrinkage on each steer is estimated at ten per cent. of its actual weight. To this must be added ten pounds of bruised flesh trimmed away. The skilled pathologist alone can describe the wretched state of the organs of such creatures, and the consequent unfitness of their other tissues for human food. On the other hand, that animal which can be driven comfortably from its customary feeding grounds to a properly equipped slaughter-house, killed, and dressed under favorable conditions, and the flesh forwarded direct to the consumer surrounded by uniform conditions of temperature and dryness, is surely better qualified to fulfil its destiny as food.

The plan pursued by the Marquis de Mores is, in outline, this: He takes the cattle from his own ranges lying hereabout, and after a drive of a few miles allows them to rest for a day or two. They are then killed, in such numbers as his retail shops demand, by a process of "pithing." A powerful spear is driven from above through the junction of the medulla and cerebellum. Death is instantaneous. They are at once dressed in a very large airy room; the carcass thoroughly cleaned, and placed in a cooling room for forty-eight hours at a temperature of about 38° F. By an ingenious arrangement of ventilation this room is maintained in so dry and clean a condition that the meat becomes actually dry to the touch. The gaseous exhalations, etc., are precipitated into the melting ice, whence they are carried in solution. In this room one can strike a match on almost any surface, so complete is its dryness, and the air is practically free from any odor. At the end of forty-eight hours the carcasses are packed in the refrigerator cars, models of cleanliness, at a lower temperature than that of the packing-room —about 34° F., and the cars are very carefully maintained at this temperature till they have arrived at the shops of the Company in the East for distribution directly to the householder.

In this way the eleven middlemen, through whose hands cattle usually pass before the dressed meat reaches the cook, are dispensed with. The financial aspect of the enterprise bids fairly for success, and the beef is certainly of better quality than that which is so unfortunate as to be much handled. The shops referred to have a limited capacity, and all beef is sold out at once at very reasonable rates. This enables the Company to maintain a steady and accurate rate of production. The details of this enterprise are of great interest, but I have said enough to give your readers an idea of how clean, wholesome beef can be had at a low cost.

Yours respectfully,

J. Madison Taylor.

Medora, Dakota, August 15, 1886.

SIMPLE METHOD OF ADDING NITRIC ACID TO URINE IN TESTING FOR ALBUMEN.

To the Editor of The Medical News,

Sir: In your issue of July 24th, on pp. 96 and 97, I notice that the "Albumen Test Committee," in their report to the Clinical Society of London, favor the use of nitric acic in testing for albumen and describe nitric acid "as being most reliable and delicate."

In no work on urinalysis, nor in any of the journals, have I seen mentioned the following method of adding nitric acid to the urine, and this method I have employed for some time.

We must first bear in mind that the specific gravity of normal urine ranges from 1.015 to 1.022, though some authors place it as low as 1.005 and as high as

1.030. Now the specific gravity of nitric acid (U. S. P.) is 1.420 and dilute nitric acid (U. S. P.) is 1.059, each being greater than that of normal urine. To test the urine for albumen, pour into a test-tube of medium size enough urine, so that there shall be a column 2 or 2½ centimetres in height; then with a pipette or small tube take up a column of nitric acid 3½ centimetres in height, or, in general, let the column of acid be a little higher than the column of urine (so better to notice the displacement of the fluids). With the finger firmly pressed against the upper end of the pipette or tube, pass the latter to the bottom of the column of urine still keeping the finger pressed against the upper end; the fluids will mix according to the force of their specific gravity—*i. e.*, the nitric acid will gradually flow to the bottom of the test-tube and the urine will rise in the tube to the height at which was the nitric acid. By this method we can more easily and more clearly notice any turbidity which may be formed and without any agitation of the fluids. The same method can be followed in using acetic acid (U. S. P.) which has a specific gravity of 1.048, or the glacial acetic acid which has a specific gravity of 1.056–1.058.

Respectfully yours,

E. H. Trowbridge, M. D.

601 Congress St., Portland, Me.,
August 18, 1886.

NEWS ITEMS.

Dr. Oliver Wendell Holmes sailed from Liverpool last Saturday on the steamship "Aurania," and is expected in New York to-morrow.

The University of the City of New York has conferred the honorary degree of M.D. upon Mr. Lawson Tait.

Americans at the Meeting of the British Medical Association.—Among the Americans registered as present at the meeting, we notice the names of Drs. T. A. Emmet and Fordyce Barker, of New York; J. S. Billings, of Washington; Wm. Brodie, of Detroit; J. R. Chadwick, of Boston; N. S. Davis, of Chicago; Frank Donaldson, of Baltimore; Chas. Warrington Earle, of Chicago; H. O. Hitchcock, of Kalamazoo; F. H. Hooper, of Boston; Howard A. Kelly, of Philadelphia; W. T. Lusk, of New York; Hunter McGuire, of Richmond; R. B. Maury, of Memphis; W. H. Pancoast, of Philadelphia; W. F. Peck, of Davenport, Iowa; S. J. Radcliffe, of Washington; H. P. C. Wilson, of Baltimore; James C. Wilson, of Philadelphia; and W. Gill Wylie, of New York.

The Volta Prize.—The Volta prize of 50,000 francs will be awarded by the Paris Academy next year for the most worthy discovery in the province of electrotechnics in its application to chemical, technical, or therapeutic uses. The theses must be presented by June 30, 1887.

The Brighton Prize of two hundred dollars for the current year has just been awarded, by the committee appointed for that purpose by the President and Fellows of Harvard University, to Dr. Charles F. Withington, of Boston, for an essay on "The Relation of Hospitals to Medical Education."

The Liebig Monument Fund amounts to 25,000 dollars, and the monument will be erected in Ziessel, a small Hessian University town, where Liebig first won fame as a lecturer on chemistry.

Dangerous Lemonade.—A style of lemon-squeezer has been recently sold quite extensively which is made of galvanized iron, or iron covered with a coating of zinc. A word of caution should be given against the use of such articles, as the citric acid of the lemon will readily dissolve the zinc, forming unwholesome and poisonous salts. Lemon-squeezers should be made either of plain iron or wood, or, better, like some we have observed, where the surfaces brought into contact with the fruit are of glass or porcelain. Zinc is a metal which is readily attacked by the weakest acids, and no article of food or drink should ever be allowed to come into contact with it.

To Distinguish Oleomargarine from Butter.—J. Horstler recommends the following procedure: A piece of oleomargarine the size of a hazelnut is placed in a test-tube, and the end made air-tight. Into another test-tube a like quantity of butter is treated in the same way. When both test-tubes are held in the hand, the oleomargarine soon liquefies, forming a clear solution; whilst butter requires double the time for solution, and when dissolved is not so clear as the oleomargarine solution. When the tube is filled one-third full with ether, the oleomargarine is easily dissolved, and does not produce any turbidity or precipitate on the addition of alcohol. Butter when treated in like manner yields a precipitate.

American Public Health Association. — The Fourteenth Annual Meeting of the American Public Health Association will be held at Toronto, Ont., Oct. 5–8, 1886. The Executive Committee have selected the following topics for consideration at said meeting:

I. The disposal of the Refuse Matters of Cities and Towns.

II. The Condition of Stored Water-supplies, and their Relation to the Public Health.

III. The Best Methods and the Apparatus Necessary for the Teaching of Hygiene in the Public Schools, as well as the Means for Securing Uniformity in such Instruction.

IV. Recent Sanitary Experiences in connection with the Exclusion and Suppression of Epidemic Disease.

V. The Sanitary Conditions and Necessities of School-houses and School-life. (See Lomb Prize Essays.)

VI. The Preventable Causes of Disease, Injury, and Death in American Manufactories and Workshops, and the best Means and Appliances for Preventing and Avoiding them. (See Lomb Prize Essays.)

VII. Plans for Dwelling-houses. (See Lomb Prize Essays.)

All persons who propose to present papers at the next meeting of the Association will be governed by the following order, enacted by the Executive Committee at Washington, D. C., Dec. 7, 1885: "That all papers hereafter presented to the Association must be either printed, type-written, or in a plain handwriting, and be

in the hands of the Secretary at least twenty days prior to the annual meeting."

The International Medical Congress and the British Medical Association.—At the meeting of the Council of the British Medical Association held on Tuesday, August 10, the following letter was read from representatives of the Organizing Committee of the International Medical Congress, requesting facilities for communicating with the members of the British Medical Association on the subject:

"We, the undersigned Officers and Members of the Executive Council of the International Medical Congress, to be held in Washington, U. S. A., on the 5th to 11th of September, 1887, desire to take this opportunity of communicating to members of the medical profession in Great Britain, and especially to members of the British Medical Association, some of the arrangements for the reception at that Congress, and to extend to them a cordial invitation to visit our country and to attend the Congress.

We shall be greatly obliged to you, and to the Council of the British Medical Association, if you could afford us facilities for this purpose; and we would ask of your courtesy to allow us the use of a room in the Pavilion, at a stated hour on Thursday next, if convenient, for the purpose of meeting members of the Association, to whom we could make a statement on the subject.

We are, Dear Sir, Your faithful servants,

N. S. Davis, M.D., LL.D., President of the Preliminary Organization of the Ninth International Medical Congress, and member of the Executive Committee, and Ex-President of the American Medical Association.

Wm. Brodie, M.D., Vice-President of the Congress, and late president of the American Medical Association.

Wm. H. Pancoast, M.D., etc., Vice-President of the American Medical Association; Member of the Executive Council of the International Congress, 1887.

Wm. C. Wile, M.A., Vice-President of the American Medical Association."

On motion, it was resolved "that the request be granted."

Sir James Paget and the International Medical Congress.—*The Lancet* having announced, in its issue of Aug. 7, that Sir James Paget was likely to attend the Washington Congress, says in its issue of the following week that it was in error in so stating. It, however, "still hopes that one who would be so much missed will find his way to Washington."

Liquids by Mail.—The decision of the Postmaster-General recently promulgated, admits to the advantages of mail carriage and distribution many articles heretofore forbidden. The following abstract of Order No. 135 will be sufficient to exhibit the scope and the excellent provisions of the new regulation:

Liquids and oils (not to exceed four fluidounces), pastes, salves, or articles easily liquefiable must be enclosed in a wooden or *papier maché* block, not less than three-sixteenths of an inch thick in the thinnest part, strong enough to support the weight of mails piled in bags and resist rough handling. Between the bottle and the block must be some absorbent, such as cotton, felt, asbestos, cork crumbs, in order to prevent damage to other parcels. The top of the block must have a metal or wooden screw lid fitting tightly and have rubber pads. Articles not liquid must be placed in a bag, box, or removable envelope or wrapping made of paper, cloth, or parchment, and placed within a box or tube of metal or wood with sliding clasp or screw lid. If the articles are liable to break, there must be some elastic packing between the inner package and the box or tube in which it is mailed. There are other portions of the regulations which apply to articles which have no special interest to physicians or druggists.

The law will, therefore, permit any ordinary liquids (not ethereal or inflammable) being sent by mail to any post-office in the United States when put up with such care as will prevent their breakage.

Cinchonidine in Quinine.—Recently the well-known quinologist, M. de Vrij, has brought to prominent notice the fact that large quantities of cinchonidine salts were present in some brands of foreign quinine, and his assertions, as contained in a communication made to the Pharmaceutical Society of Paris, caused it to take special action in the matter. A committee was appointed to investigate the facts, and recently the chairman, M. Jungfleisch, presented his report, which fully substantiates the claims of M. de Vrij.

The statement of M. Jungfleisch is that he found market samples which contained 8, 10, 12, and 16 per cent. of cinchonidine. Quinine containing this salt was much more bulky—in fact, it is asserted that all the *light* bulky quinine of commerce is of this characteristic, viz., containing cinchonidine. He, therefore, advises that *all light* quinine *should be rejected*, and contends that *no pure* quinine sulphate can be made having the character of unusually light bulk. Of the intimate connection of these two alkaloids it may be said that their preëxistence together in some barks makes it a difficult matter to separate them at times, and some samples of cinchonidine contained as much as 10 per cent. of quinine.

What New York Drinks.—A recent official report by the New York health authorities states that the Croton water-shed embraces 239 square miles, and has a population of 20,000, with 1879 dwellings and as many privies, about as many barnyards, pig-pens, and cesspools, besides cemeteries, graveyards, slaughter-houses, and other sources of contamination, *and with no drainage except by the surface*, which conducts it to the aqueduct. Yet the Croton is the best water supply enjoyed by any large city in America or elsewhere!—*Sanitary Era.*

Preservation of Fresh Fish.—Of late years we have been accustomed to associate economy in the preservation of food with colonial or transatlantic enterprise. It is, therefore, the more encouraging to learn that Europe is equal to inventive progress in the same direction, and of this we have apparently a genuine proof in the method of preserving fresh fish introduced by Mr. August R. Roosen, of Hamburg. By his process, which is a simple one, the fish when caught are enclosed in steel barrels, each capable of accommodating 300 pounds weight, immersed in a three per cent. antiseptic solution of boracic acid, tartaric acid, and salt in water, which is forced in by means of a hydraulic hand-pump, while air is simultaneously expelled. An air-tight lid

closes the cask, and the bung-hole is a valve to which the pump is attached when in action, and which at a certain stage is closed by internal pressure. It is also satisfactory to find that a year's experience has proved its practical efficiency, at all events in the hands of the introducers. Meat is stated to have been preserved by the same process. On board of the larger fishing craft the plan appears likely to answer well. One or two points in connection with its working will require careful regulation. With regard to the water in which the antiseptics are added. If this is to consist of sea-water, as might naturally be expected, it will still be necessary for coast fishers to be careful as to its purity from river or port refuse. It will also be necessary to guard against the overcrowding of fish. If this should happen, even powerful antiseptics will be of little avail, since perfect exclusion of air is hardly possible. We hope that future use will justify the promise of this novel and ingenious experiment.

REVOLVER BULLET LODGED IN THE BRAIN; RECOVERY.—At the Society of Surgery of Paris, on May 26th, M. Prengrueber presented a man who had fired a revolver at the middle of his temporal fossa. The ball, seven millimetres in diameter, lodged in the brain. The three days following the accident the surgeon abstained from interference, as the only symptoms were general prostration with lowering of the temperature. Epileptiform attacks having occurred on the fourth and fifth days, M. Prengrueber exposed the cranial wound and removed several bony spicules, which had penetrated the brain. A stilet having failed to detect the bullet, though passed along its course to a depth of five centimetres, nothing else was done. The epileptiform seizures did not recur, and the patient left the hospital at the expiration of a month without any cerebral complication.

MUNICIPAL LIBERALITY.—At its sitting of July 31st, the Municipal Council of Paris voted a credit of 289,765 francs (£11,590) for the construction of a new surgical department at the Hôpital Cochin, to replace the wooden huts erected during the siege. It is intended to provide for all the requirements of modern surgery, with laboratory, means of isolation, etc.

MEDICO-LEGAL LABORATORIES IN SPAIN.—The Spanish Ministry of Justice has arranged for the establishment in Madrid, Barcelona, and Seville, of laboratories of forensic medicine. After the middle of September, analyses which may be ordered by magistrates will be conducted in the new institutions—a provision enabling experts nominated in the interests of accused persons to be present during the performance of such analyses.

A USEFUL PLANT—Dr. Brandes, a Hanoverian physician, has recently demonstrated in a German contemporary the valuable properties of the anacharis alsinastrum, a water-plant which has hitherto been considered as an unmitigated nuisance, choking up rivers, and altogether useless. Dr. Brandes has remarked that in the district where he lives, and where malaria and diarrhœa yearly appeared in a sporadic or epidemic form, those diseases have gradually decreased since the anacharis alsinastrum began to infest the neighboring rivers and marshes, and for four years have totally disappeared. He therefore proposes that the plant, which came originally from Canada, should be planted in marshy districts, with the view of checking malaria; and the experiment, in view of the evidence adduced in the article under notice, is certainly deserving of consideration.

NEW JOURNAL.—The first number of *The Review of Experimental and Therapeutic Hypnotism* has appeared in France. It is edited by M. Edgard Berillon, with the collaboration of Barety, de Beauvais, Bernheim, Fränkel, Guys, P. Maginn, Aug. Voisin, and others.

DEATH OF PROF. MAAS.—The death, at the age of forty-four, is announced of Dr. Hermann Maas, Professor of Surgery in Würzburg.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT OF THE U. S. ARMY, FROM AUGUST 17 TO AUGUST 23, 1886.

BAILEY, J. C., *Major and Surgeon.*—Granted one month's leave of absence. *S. O. 111, Division of the Atlantic*, August 17, 1886.

BENTLEY, E., *Major and Surgeon.*—Granted one month's leave of absence, and at its expiration to report for duty as Post Surgeon at Little Rock, Ark.—*S. O. 113, Division of the Atlantic*, August 18, 1886.

LORING, L. Y., *Captain and Assistant Surgeon.*—Leave of absence granted him in S. O. 59, August 2, 1886, Division of the Pacific, extended two months, on Surgeon's certificate of disability.—*S. O. 189, A. G. O.*, August 16, 1886.

TAYLOR, B. D., *Captain and Assistant Surgeon.*—When relieved by Surgeon Bentley, to proceed to Jackson Barracks, La., and report for duty as Post Surgeon.—*S. O. 113, c. s., Division of the Atlantic.*

HOPKINS, WM. E., *First Lieutenant and Assistant Surgeon.*—Assigned to duty as Post Surgeon at Angel Islands, California.—*S. O. 61, Division of the Pacific*, August 6, 1886.

BORDEN, WM. C., *First Lieutenant and Assistant Surgeon.*—Assigned to temporary duty at Fort Boidger, Wyoming, during absence of Assistant Surgeon Crampton.—*S. O. 100, Department of the Platte*, August 9, 1886.

WALES, PHIL. G., *First Lieutenant and Assistant Surgeon.*—Relieved from duty in Department of the Columbia, and to report in person at Headquarters Division of the Pacific for further orders.—*S. O. 62, Division of the Pacific*, August 9, 1886.

MASON, CHAS. F., *First Lieutenant and Assistant Surgeon.*—Assigned to duty as Post Surgeon at Plattsburg Barracks, New York.—*S. O. 113, Division of the Atlantic*, August 18, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 21, 1886.

STONE, DR. E. P.—Commissioned an Assistant Surgeon in the Navy, August 5, 1886.

WENTWORTH, A. R., *Assistant Surgeon.*—Ordered to temporary duty at Navy Yard, League Island, Pa.

LIPPINCOTT, G. C., *Passed Assistant Surgeon.*—Ordered to Annapolis, Md., for temporary duty as member of Medical Examining Board.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

THE DIRECT ACTION OF CALCIUM, SODIUM, POTASSIUM, AND AMMONIUM SALTS ON THE BLOODVESSELS.

BY H. G. BEYER, M.D., M.R.C.S.,

PASSED ASSISTANT SURGEON U. S. N.; HONORARY CURATOR, SECTION MATERIA MEDICA, U. S. NATIONAL MUSEUM.

THE experiments of Ringer on the influence of certain calcium and potassium salts on the contractility of the frog's ventricle, have attracted well-deserved attention from the profession.

In the several papers published in the *Journal of Physiology*, he has shown that very minute quantities of potassium and calcium salts possess the power of greatly modifying the contractility of the heart. He pointed out that even so minute a quantity of potassium chloride as 1 in 15,000, and of calcium chloride as 1 in 10,000, is capable of promoting the normal cardiac contractility, provided they are brought in contact with the ventricle in the presence of a three-quarter per cent. saline medium.

Ringer, while not attempting to explain how such minute quantities of inorganic salts can influence so profoundly the organized structures of the heart, thinks it not improbable that the salts do not enter into direct combination with the molecules of the muscular tissue, or, if any combination does take place, that it is of an extremely loose character, since the salts are easily dislodged and washed away by the mere circulation of a fluid devoid of these salts.

Kronecker, and some of his pupils, find that if a ventricle is fed with a 0.6 per cent. normal saline solution, contractility soon ceases, and a strong induction-shock will not excite contractions. They conclude that the suspension of contractility depends on the saline solution washing out all the nutritive material from the cavities of the heart and the meshes of its spongy substance.

Merunowicz (quoted by Ringer) found that the dissolved ash of incinerated blood furnishes a good fluid for supporting the heart's contractility, and Gaule concluded that the essential agent in the ash which sustains the contractility is an alkaline carbonate. Gaule also found that the addition of an alkaline sodium salt, even in small quantity, to saline solution, enables it to sustain contractility longer than when simple saline solution is used.

Gaule, therefore, differs from Kronecker, and maintains that the heart can feed on its own tissues, and derive from them all the materials necessary for a contraction. Kronecker, on the other hand, insists that the frog's heart does not feed on its own substance, and that as soon as nutritive fluid is withdrawn its contractility ceases.

We think that Ringer has shown conclusively that certain alkaline salts will prolong the contractility of the heart, and calcium salts prolong it more than sodium salts. Ringer very correctly observed that the character of the contractions underwent much alteration under the influence of these salts, but that the addition to the circulating fluid of a physiological quantity of a potassium salt entirely obviated these alterations, adding greatly to the duration of the contractility. It was found that while calcium salts promoted the contractility, potassium salts favored the relaxation of the ventricle.

Thus, by adding to normal saline solution certain small quantities of bicarbonate of sodium, chloride of potassium, and chloride of calcium, Ringer finally succeeded in obtaining a circulating medium by means of which normal contractility could be maintained for hours.

On looking over the literature of the subject, I found that very little indeed had been done to ascertain the nature of the action of these salts on the vascular system. The interest and importance which attaches to the results of Ringer's experiments on the heart made it appear very desirable that something more should be done with a view of ascertaining the exact influence of these salts on the vascular system.

With this object in view, the experiments which follow were made.

On account of the great scarcity of frogs in mid-winter these experiments were all made with terrapins. My method consisted in cutting out the heart and inserting canulas into the aortic trunks, and one canula into the sinus. The aortic canulas were connected with Mariotte's flasks, placed at a certain height above the body of the animal, from which flasks liquid was made to flow into the arteries. This liquid, after circulating through the capillaries and veins, was drained off from the sinus into a beaker, and measured at definite intervals. After this outflow had become constant, circulating fluid, plus the drug, was substituted for the normal circulating fluid, and the action of the drug on the vessels determined from the change which took place in the amount of the outflow in a unit of time. A decreased outflow indicated increased resistance to the flow of the fluid through the vessels, or, in other words, a constriction of them, and an increased outflow, a dilatation of them.

In most of my published experiments on the action of drugs on the heart and bloodvessels, I made use of a circulating fluid which I termed "Ringer's saline," on account of his having first proposed it as a good substitute for the normal salt solution wherever the use of the latter might be indicated. As a diluent for mammalian blood to be used in experiments on the isolated heart of cold-blooded animals, it certainly was found to surpass by far the ordinary seventy-five one-hundredths per cent. salt solution in keeping the heart active and alive to the action of drugs as well as to other influences.

But in experimenting with different alkaline salts on the bloodvessels, I was naturally obliged to fall back upon normal salt solution as the standard, and, therefore, the first experiments were made with a view of ascertaining the influence on the bloodvessels of Ringer's saline as compared with that of normal salt solution.

EXPERIMENT XLI.—March 23, 1886. Terrapin 1250 grms. Inflow canulas in right and left arterial trunks. Outflow canula in sinus. Arterial pressure 18 c.m. Venous pressure 0. Circulating fluids: Ringer's saline and normal salt solution (0.75 per cent.).

Time P. M. from	to	Temp. Cent.	Total outflow.	Outflow per min.	Circulating fluids were supplied to the vessels at the time mentioned on same line in second column.
3.14	3.16	16°	49	24.5	On normal salt solution.
16	18	...	50	25	
18	20	...	49	24.5	
20	22	...	52	26	
22	24	16	52	26	
24	26	...	52	26	On Ringer's saline.
26	28	...	53	26.5	
28	30	...	52	26	
30	32	16	26	13	
32	34	...	30	15	
34	36	...	30	15	
36	38	...	32	16	
38	40	16	30	15	
40	42	...	29	14.5	On normal salt solution.
42	44	...	20	10	
44	46	...	24	12	
46	48	16	26	13	
48	50	...	26	13	
50	52	...	28	14	
52	54	...	30	15	
54	56	16	32	16	
56	58	...	35	17.5	
58	4.00	...	37	18.5	
4.00	02	...	38	19	
02	04	...	38	19	
04	06	...	40	20	
06	08	16	40	20	On Ringer's saline.
08	10	...	35	17.5	
10	12	...	30	15	
12	14	...	21	10.5	
14	17	16	31	10.3	
17	19	...	21	10.5	
19	21	...	21	10.5	
21	23	...	20	10	
23	25	16	18	9	On normal salt solution.
25	27	...	16	8	
27	29	...	19	9.5	
29	31	...	22	11	
31	33	16	25	12.5	
33	35	...	30	15	
35	37	...	32	16	
37	39	...	34	17	
39	41	16	38	19	
41	43	...	40	20	
43	45	...	42	21	Ended.

Experiment XLI. is one out of the three experiments made with regard to the influence of Ringer's saline on the bloodvessels as compared with that of normal salt solution. They all show very clearly that Ringer's saline possesses over normal salt solution the power of greatly contracting the bloodvessels. This contraction, as shown in this experiment, takes place gradually, but the dilatation which follows the readmission of normal salt solution is very slow.

The composition of this fluid is as follows:

Normal salt solution . . .	(0.75 per cent.)	100 c.c.
Calcium chloride solution .	(1 : 390)	5 "
Sodium bicarbonate solution	(0.50 per cent.)	2.5 "
Potassium chloride solution	(1.0 per cent.)	0.75 "

Mix and filter.

The question naturally arose as to which one of the different constituents of this fluid gave rise to the contraction of the vessels. Several experiments were made with regard to this point, but Experiment XLII. will suffice to show that it was the chloride of calcium. As indicated in the heading, three different circulating fluids were made use of: First, normal salt solution; second, normal salt solution to which had been added potassium chloride in the exact proportion in which this was contained in Ringer's saline; third, Ringer's saline, the potassium chloride left out. Potassium chloride, therefore, was used in extremely small quantities, the solution containing less than 1 : 10,000.

This experiment shows very clearly that normal salt solution and potassium chloride give rise to great dilatation of the bloodvessels, while, on the other hand, Ringer's saline without potassium chloride causes their contraction. As may be seen in the experiment, the vessels, contracted by Ringer's saline minus potassium chloride, are gradually dilated by normal salt solution, and this dilatation is still further increased upon the admission of normal salt solution plus potassium chloride. Ringer's saline now readmitted, within a very few minutes may be noticed to reduce the quantity of the outflow to one-third its former amount, therefore, also reducing the calibre of the vessels in about the same proportion; normal salt solution reëstablished the normal calibre of these vessels, while potassium chloride, again, caused them to dilate.

From this and other experiments, all concordant, it is plain that everything pointed to the chloride of calcium as being the cause of the contraction of the vessels, and, at the same time, to the potassium chloride as causing their dilatation. Both having been used in the same proportion in which they are contained in Ringer's saline—that is, in very minute quantities—we may conclude (1) that calcium chloride, even in very small doses, gives rise to contraction, and potassium chloride in equally minute doses to dilatation of the bloodvessels in the terrapin.

EXPERIMENT XLII.—March 24, 1886. Terrapin 990 grms. Inflow canulas in right and left arterial trunks. Outflow canula in sinus. Arterial pressure 18 c.m. Venous pressure 0. Circulating fluids: (*a*) normal salt solution, (*b*) normal salt solution + potassium chloride, (*c*) Ringer's saline — potassium chloride.

Time P. M. from	to	Temp. Cent.	Total outflow.	Outflow per min.	The circulating fluids were supplied to the vessels at the time mentioned on the same line in the second column.
3.07	3.09	16°	28	14	Normal salt solution(*a*).
09	11	...	30	15	
11	13	...	30	15	
13	15	16	29	14.5	
15	17	...	31	15.5	Normal salt solution + potas-
17	19	...	35	17.5	[sium chloride(*c*).
19	21	...	48	24	
21	23	16	48	24	
23	25	...	50	25	
25	27	...	45	22.5	
27	29	...	35	17.5	
29	31	16	31	15.5	
31	33	...	30	15	
33	35	...	32	16	
35	37	...	32	16	On normal salt solution(*a*).
37	39	16	36	18	
39	41	...	40	20	
41	43	...	42	21	
43	45	...	47	23.5	

Time P. M. from	to	Temp. Cent.	Total outflow	Outflow per min.	The circulating fluids were supplied to the vessels at the time mentioned on the same line on the second column
45	47	16	46	23	
47	49	...	48	24	
49	51	...	48	24	
51	53	...	48	24	On normal salt solution +
53	55	16	52	26	[potassium chloride(*c*).
55	57	...	62	31	
57	59	...	62	31	
59	4.01	...	63	31.5	
4.01	03	...	67	33.5	On Ringer's saline — potas-
03	06	16.5	76	25.3	[sium chloride(*b*).
06	08	...	36	18	
08	10	...	24	12	
10	12	...	22	11	
12	14	...	23	11.5	
14	16	16.5	23	11.5	
16	18	...	22	11	On normal salt solution(*a*).
18	20	...	26	13	
20	22	...	30	15	
22	24	...	32	16	
24	26	16.5	30	15	
26	28	...	31	15.5	On normal salt solution +
28	30	...	36	18	[potassium chloride(*c*).
30	32	...	42	21	
32	34	16.5	48	24	
34	36	...	54	27	[slight œdema.
36	38	...	60	30	Observations discontinued;

In order to test still further the action of lime salts on the vessels, a saturated solution of sulphate of lime was made, and the solution converted into normal salt solution by simply adding the required amount of chloride of sodium. In addition, a solution of bromide of potassium was made containing one gramme of the bromide in 3000 cubic centimetres of normal saline solution. Several observations were made with the solution of bromide of potassium, but since they were all concordant, one will here suffice to show the effect it produces on the vessels.

Experiment XLV. clearly shows the influence of both calcium and potassium salts on the vessels in larger doses than had been used in previous experiments. It was found that under sulphate of lime the quantity of the outflow was gradually diminished to about one-fifth normal, and that, therefore, the calibre of the vessels must have become reduced in about the same proportions. Bromide of potassium, on the other hand, gave rise to an increased outflow, hence must have dilated the vessels.

The conclusions, therefore, are obvious, namely, calcium salts, in comparatively large doses, cause contraction, and potassium salts, in medium doses, cause dilatation of the bloodvessels, in the case of the terrapin.

EXPERIMENT XLV.—March 27, 1886. Terrapin 460 grms. Inflow canulas in right and left aortic trunks. Outflow canula in sinus. Arterial pressure 16 c.m. Venous pressure 0. Circulating fluids: normal salt solution, saturated solution of calcium sulphate made into normal salt solution (0.75 per cent.), normal salt solution and bromide of potassium 3000 c. c. : 1.

Time P. M. from	to	Temp Cent.	Total outflow.	Outflow per min.	
3.06	3 08	16°	28	14	Normal salt solution.
08	10	...	28	14	
10	12	...	29	14.5	
12	14	...	28	14	
14	16	...	29	14.5	On calcium sulphate solution
16	18	16	24	12	
18	20	...	21	10.5	
20	22	...	14	7	
22	24	...	8	4	On normal salt solution.
24	26	...	7	3.5	
26	28	...	7	3.5	
28	31	16	12	4	
31	33	...	12.5	6.2	
33	36	...	31	10.3	
36	38	...	23	11.5	
38	40	...	27	13.5	
40	42	...	28	14	On calcium sulphate solution.
42	44	16	26	13	
44	46	...	21	10.5	
46	48	...	13	6.5	
48	50	...	11	5.5	On normal salt solution.
50	53	...	13	4.3	
53	55	...	8	4	
55	57	...	11	5.5	
57	59	...	13	6.5	
59	4.01	...	15	7.5	
4.01	03	...	18	9	
03	05	...	20	10	
05	08	...	31	10.3	
08	10	...	24	12	
10	12	...	25	12.5	On solution of bromide of
12	15	...	39	13	[potassium.
15	17	...	28	14	
17	20	...	46	15.3	
20	22	...	35	17.5	
22	24	...	36	18	
24	26	...	41	20.5	[considerable œdema.
26	28	...	48	24	Observations discontinued;

EXPERIMENT L.—April 1, 1886. Terrapin 1205 grms. Inflow canulas in right and left aortic trunks. Outflow canula in sinus. Venous pressure 0. Arterial pressure 14 c.m. Circulating fluids: Normal salt solution, solution of sodium iodide in normal salt solution 1 : 1000, solution of sodium bromide in same proportion.

Time P. M. from	to	Temp. Cent.	Total outflow.	Outflow per min.	Circulating fluids were supplied to the vessels at the time mentioned on the same line in the second column
2.55	2.57	18°	18	9	On normal salt solution.
57	59	...	18	9	
59	3.01	...	18	9	
3.01	03	...	18	9	
03	05	18	19	9.5	
05	07	...	18	9	On sodium iodide solution.
07	09	...	20	10	
09	11	...	26	13	
11	13	...	32	16	
13	15	18	24	12	
15	17	...	16	8	
17	19	...	10	5	On normal salt solution.
19	21	...	8	4	
21	23	...	10	5	
23	25	18	15	7.5	
25	27	...	14	7	
27	29	...	14	7	
29	31	...	14	7	
31	33	...	14	7	
33	35	18	14	7	On sodium iodide solution.
35	37	...	15	7.5	
37	39	...	16	8	
39	41	...	16		
41	43	...	18		
43	45	...	22		
45	47	18.5	26	...	On normal salt solution.
47	49	...	14		
49	51	...	13		
51	53	...	18		
53	55	...	19		
55	57	18.5	18	...	On sodium bromide solution.
57	59	...	18		
59	4.01	...	18		
4.01	03	...	32		
03	05	...	36		
05	07	18.5	34		
07	09	...	24		
09	11	...	20		
11	13	...	12		
13	15	...	10	...	On normal salt solution.
15	17	...	12		
17	19	18.5	15		
19	21	...	15		
21	23	...	14		
23	25	...	14	...	On sodium bromide solution.

Time P. M. from	to	Temp. Cent.	Total outflow.	Outflow per min.	Circulating fluids were supplied to the vessels at the time mentioned on the same line in the second column.
25	27	...	15		
27	29	18.5	22		
29	31	...	28		
31	33	...	33		
33	35	...	38		
35	37	18.5	28		
37	39	...	24	...	On sodium iodide solution.
39	41	...	20		
41	43	...	15		
43	45	...	13		
45	47	...	10		
47	49	18.5	11		
49	51	...	10		
51	53	...	9		
53	55	...	9	...	On normal salt solution.
55	57	...	5.5		
57	59	...	6		
59	5.03	...	16		
5.03	07	...	26		
07	09	...	12		
09	11	...	14		
11	13	...	14		
13	15	19	15	...	Observations discontinued.

The observations recorded in Experiment L. show that bromide and iodide of sodium in large doses give rise to dilatation of the bloodvessels, which dilatation is followed by contraction of the same. The same result was obtained when these salts were used in the proportion of 1 : 5000, with the exception that the dilatation produced lasted longer, and the contraction came on much later, and was much more gradual. Sodium salts, therefore, differ materially from those of calcium and potassium in their effects upon the bloodvessels.

Experiment XLVII. — March 30, 1886. Terrapin 1370 grms. Inflow canulas in right and left aortic trunks. Outflow canula in sinus. Arterial pressure 16 c. m. Venous pressure 0. Circulating fluids: Normal salt solution, sodium bicarbonate in normal salt solution 1 : 1000, potassium iodide in normal salt solution 1 : 1500.

Time P. M. from	to	Temp. Cent.	Total outflow.	Outflow per min.	
2.40	2.42	16°	20	10	On normal salt solution.
42	44	...	20	10	
44	46	...	20	10	
46	48	...	21	10.5	
48	50	...	22	11	On sodium bicarbonate solution.
50	52	16	24	12	
52	54	...	28	14	
54	56	...	35	17.5	
56	58	...	41	20.5	On normal salt solution.
58	3.00	...	33	16.5	
3.00	02	16	24	12	
02	04	...	24	12	On sodium bicarbonate solution.
04	07	...	40	13.3	
07	09	...	32	16	
09	11	16	28	14	
11	13	...	22	11	
13	15	...	20	10	
15	17	...	16	8	
17	20	...	18	6	
20	23	...	12	4	On normal salt solution.
23	26	...	14	4.6	
26	28	16	11	5.5	
28	30	...	14	7	
30	32	...	16	8	On potassium iodide solution.
32	34	...	16	8	
34	36	...	19	9.5	
36	38	16.5	21	10.5	
38	40	...	23	11.5	
40	42	...	24	12	
42	44	...	26	13	
44	46	...	28	14	
46	48	...	30	15	
48	50	16.5	35	17.5	
50	52	...	36	18	
52	54	...	40	20	On normal salt solution.
54	56	...	33	16.5	
56	58	...	29	14.5	
58	4.00	...	27	13.5	
4.00	02	17	20	10	
02	04	...	20	10	On potassium iodide solution.
04	06	...	24	12	
06	08	...	26	13	
08	10	...	29	14.5	
10	12	...	31	15.5	
12	14	...	33	16.5	
14	16	17	36	18	
16	18	...	42	21	
18	20	...	48	24	Observations discontinued; œdema.

Experiment XLVII. shows that bicarbonate of sodium, like bromide and iodide of sodium, causes dilatation of the bloodvessels, which dilatation is followed by a contraction; it shows, furthermore, that iodide of potassium, like chloride of potassium, gives rise to a dilatation of the bloodvessels, which dilatation, even when very large doses are used, is permanent, and at no time followed by contraction. We may, therefore, safely conclude that sodium salts give rise to dilatation followed by contraction of the bloodvessels, and that potassium salts, in large as well as small doses, always cause dilatation of the vessels.

In the next experiment the bromide of potassium was used in the proportion of 1 of the bromide to 3000 cubic centimetres of normal salt solution, or about half the strength of the potassium iodide solution used in previous experiments. The effect on the bloodvessels may be seen to be identical with that produced by the iodide, thus showing that it is not due to the iodine or bromine in combination with potassium, but rather to the potassium part of these salts. This may also be inferred from the fact that the chloride of potassium, too, produces the same effect upon the bloodvessels, namely, it causes their dilatation in small as well as large doses.

In connection with the dilatation of the vessels produced by potassium salts, considerable œdema was invariably noticed; this was absent in experiments with calcium and sodium salts.

Experiment XLIV.—March 26, 1886. Terrapin 650 grms. Inflow canulas in right and left aortic trunks. Outflow canula in sinus. Arterial pressure 18 c. m. Venous pressure 0. Circulating fluids: Normal salt solution, solution of potassium bromide 1 in normal salt solution 3000.

Time P. M. from	to	Temp. Cent.	Total outflow.	Outflow per min.	
3.08	3.10	18°	11	5.5	Normal salt solution.
10	12	...	11	5.5	
12	14	...	10	5	
14	16	...	10	5	
16	18	...	12	6	
18	20	...	12	6	
20	24	18	24	6	On potassium bromide solution.
24	26	...	14	7	
26	28	...	17	8.5	
28	30	...	18	9	
30	32	...	24	12	
32	34	...	30	15	On normal salt solution.
34	36	18	18	9	
36	38	...	16	8	
38	40	...	11	5.5	
40	42	...	11	5.5	On potassium bromide solution.
42	44	...	13	6.5	
44	46	...	17	8.5	
46	48	18	24	12	
48	50	...	30	15	On normal salt solution.

Time from	P. M. to	Temp. Cent.	Total outflow	Outflow per min	
50	52	...	24	12	
52	54	...	13	6.5	
54	56	...	9	4.5	
56	58	...	9	4.5	
58	4.00	...	10	5	
4.00	02	...	10	5	On potassium bromide solu-
02	04	...	12	6	[tion.
04	06	...	15	7.5	
06	08	...	18	9	
08	10	...	23	11.5	
10	12	...	29	14.5	On normal salt solution.
12	14	...	16	8	
14	16	...	14	7	
16	18	...	10	5	
18	20	...	9	4.5	
20	22	...	8	4	
22	24	...	9	4.5	[great œdema.
24	26	19	10	5	Observations discontinued;

Experiment XLVIII. has been selected from three experiments made with ammonium salts on the bloodvessels, because it represents in a typical manner what took place in all, namely, great dilatation followed by slight contraction; the latter, though rarely observed as coming on during the time the ammonium salt solution is in the bloodvessels, must nevertheless be looked upon as an effect of ammonium salts, for the vessels ultimately recover their normal calibre under the influence of normal salt solution. Hence, the salts of ammonium resemble those of sodium in their effects on the bloodvessels.

EXPERIMENT XLVIII.—March 31, 1886. Terrapin 1210 grms. Inflow canulas in right and left arterial trunks. Outflow canula in sinus. Arterial pressure 12 c.m. Venous pressure 0. Circulating fluids: Normal salt solution — chloride and bromide of ammonium in normal salt solution, each in the proportion of 1 : 1000.

Time from	P. M. to	Temp. Cent.	Total outflow.	Outflow per min.	
2.55	2.57	16°	30	15	Normal salt solution.
57	59	...	30	15	
59	3.01	...	31	15.5	
3.01	03	...	30	15	
03	05	...	30	15	
05	07	...	29	14.5	
07	09	16	29	14.5	On ammonium chloride solu-
09	11	...	29	14.5	[tion.
11	13	...	37	18.5	
13	15	...	42	21	
15	17	...	48	24	On normal salt solution.
17	19	...	38	19	
19	21	...	18	9	
21	23	...	20	10	
23	25	...	25	12.5	
25	27	16	30	15	
27	29	...	30	15	
29	31	...	32	16	On ammonium chloride solu-
31	33	...	40	20	[tion.
33	35	...	39	20.5	
35	37	...	74	37	On normal salt solution.
37	39	...	61	30.5	
39	41	...	45	22.5	
41	43	...	42	21	
43	45	...	41	20.5	
45	47	...	42	21	
47	49	...	41	20.5	On ammonium bromide.
49	51	...	46	23	
51	53	...	66	33	
53	55	...	78	39	On normal salt solution.
55	57	...	60	30	
57	59	...	55	27.5	
59	4.01	...	50	25	
4.01	03	...	38	19	
03	05	...	28	14	
05	07	..	36	18	
07	09	...	35	17.5	On ammonium bromide.
09	11	...	45	22.5	
11	13	...	90	45	On normal salt solution.
13	15	...	73	37.5	
15	17	...	58	29	
17	19	...	52	26	
19	21	...	48	24	
21	23	...	41	20.5	[no œdema.
23	25	...	41	20.5	Observations discontinued:

The amount of chloride and bromide of ammonium used in this experiment was larger than that used in the remainder of them. The effect, however remained the same. The dilatation produced by ammonium salts, in large or small doses, is prompt and extensive.

With the exception of Ringer's experiments, referred to above, very little indeed is found in literature on the physiological characteristics of calcium salts. The same may be said of the salts of sodium so far as their effect on the circulatory apparatus is concerned.

Potassium salts have been found to cause death by heart-paralysis, being both nerve and muscle poisons. The primary effect of the potassium salts on the circulation is said to be a transient decrease in blood-pressure, together with a slowing of the pulse-rate, but a rise in pressure and an increase in the rate quickly follow. The rate, however, again begins to go down while the pressure may still be on the rise. Finally, large doses have been found to cause immediate and permanent lowering of blood-pressure, as well as slowing of the pulse-rate, which may culminate in diastolic arrest.

Drs. Lauder Brunton and Cash, in their experiments with potassium salts on the bloodvessels, found that potassium chloride gave rise to great contraction, which exceeded even that produced by calcium and strontium salts. This certainly is not the *direct* action of these salts in the case of the terrapin.

The salts of potassium, as is well known, are frequently employed by practitioners in combination with digitalis for the diuretic effects which they produce. If, now, they did produce dilatation of the renal vessels in man as they do in the terrapin, which, I think, is more than probable from the foregoing experiments, their combination with cardiac tonics like, for instance, digitalis, would certainly go far to explain their salutary diuretic effects which they are known to produce in dropsies of all kinds.

According to Funke and Deahne, the salts of ammonium cause temporary contraction of the bloodvessels owing to their stimulating influence upon the vasomotor centres in both brain and spinal cord; the same authors also state that these salts possess a stimulating influence on the inhibitory centre in the brain, thereby causing slowing in the pulse-rate, in larger doses, diastolic cardiac arrest.

In conclusion, we offer the following explanations for the phenomena observed in the foregoing experiments:

1. Calcium salts cause the vessels to contract by virtue of their stimulating influence on the vasomotor ganglia.

2. Sodium and ammonium salts excite, first, the ganglia of the vasodilators; next, those of the vaso-

motors; hence producing at first dilatation, and afterward contraction of the vessels.

3. Potassium salts stimulate the ganglia of the vasodilators only, and consequently produce dilatation; if, however, as was shown in two observations, the dilatation which they produce is followed by contraction, this contraction is so extremely slight that it may practically be neglected; therefore, any stimulating influence on the vasomotor ganglia which they might possess is insignificant when compared with that which they exert over the vasodilators.

THE AMBLYOPIA OF SQUINTING EYES: IS IT A DETERMINING CAUSE, OR A CONSEQUENCE OF THE SQUINT?[1]

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The question whether the amblyopia which exists in the squinting eye in so large a proportion of cases of concomitant convergent strabismus is a consequence of the squint, or whether it antedates it, and is an important factor in determining its development, is one not of mere theoretical interest, but of practical importance; for upon its solution depends the further question, whether the operative correction of this deformity shall be undertaken at the earliest moment possible after it has become established, or whether it may be postponed, without detriment to the result, to a later period of life. If the views of Schweigger and of Alfred Gräfe, that the amblyopia is a congenital defect, and not a result of the squint, be correct, it is a matter of little moment when the operation shall be undertaken; but, on the other hand, if, as was commonly held before the promulgation of their views, the amblyopia is produced by the squint, in consequence of the habitual negation of the retinal image in the squinting eye, then the question of time is an all-important one, since the success of the operation depends to so great a degree upon the amount of sight retained by the squinting eye at the time of its performance.

The facts which these distinguished authorities have cited, and the arguments which they have advanced, to sustain their views, do not appear to me to be at all convincing, and though the same criticism doubtless applies in a measure to all that can be said in support of the older doctrine, still I cannot but think that the weight of evidence is decidedly in its favor. It has seemed to me, therefore, in view of its practical bearing, that the question which this paper brings up is one which ophthalmologists might discuss with profit.

It is customary to speak of the amblyopia of squint as "*amblyopia exanopsia*," and to place it in the same category with the amblyopia which results, in young persons especially, from the long-continued existence of lenticular or corneal opacity; but this is clearly a mistake, for if the impaired vision be in any sense the result of the squint, it is certainly not due simply to want of exercise of the retina, as is the case with opacity of the media, but to a cerebral process which gives rise to a much more rapid failure of sight, and the outcome of which is better described as a loss of perception in the corresponding cerebral centres, than as an amblyopia of the eye, as Nettleship has suggested.[1] Alfred Gräfe, himself, admits this difference, and yet, realizing, apparently, the unconvincing character of the evidence by which he attempts to sustain his position, he permits himself to use as an argument against the theory that the amblyopia is produced by the squint, the well-known fact that in monocular cataract the exclusion of the retina from participation in vision, even for many years, does not usually (in adult life) result in impairment of its function.

Both Schweigger and Alfred Gräfe[2] reject Müller's theory of congenital retinal identity, and evidently think that by doing so they greatly strengthen their position. I cannot see, however, that such is the case; for, since convergent squint is scarcely ever congenital, and is only rarely seen in early infancy, there is every reason to believe that, whether this fundamental principle of binocular vision—the correspondence of identical retinal points—be an inherited or an acquired law, it is in operation during the pre-squinting years of life; otherwise there would be from the first no stimulus to binocular fixation, and the development of squint in infancy would certainly be the rule, and not the rare exception that it is.

Again, they both refer to the fact that in some cases of non-alternating squint of years' standing the squinting eye retains vision which is nearly, or quite as good as that of the other eye; while in the other cases a high degree of amblyopia is found in squints of very recent development; and this, they think, militates against the view that the squint induces the amblyopia. In reply to this, it may be said that, as a rule, the impairment of vision is certainly greater in squints of long standing than in those of short duration; in the next place, that the non-development of amblyopia in exceptional instances is easily explained without the necessity of abandoning the suppression theory, a marked difference in the refraction of the eyes being competent to produce this result, because the indistinct retinal image which the squinting eye receives under such circumstances causes less confusion, and is, therefore, less apt to be suppressed; and, in the third place, that the development of the amblyopia doubtless begins during the forming stage of the squint, while it is yet unconfirmed, each movement of excessive convergence being accompanied by an effort to get rid of the attendant diplopia, so that it is not at all remarkable that in some instances the impairment of vision should reach a high grade by the time the squint has become fully established; and, furthermore, if this were not the case, who, it may be asked, is in a position to affirm that the alterations of cerebral structure which cause the impairment of vision may not take place within the space of even a few weeks?

Schweigger asks why we usually have diplopia in paralytic squint and not in concomitant squint, and

[1] A paper read before the American Ophthalmological Society, July 22, 1886.

[1] Diseases of the Eye, American edition, p. 238.

[2] See article upon Strabismus, by Alfred Gräfe, in Gräfe and Saemisch's Handbuch, vol. vi., and the chapter upon the same subject in Schweigger's Handbuch der Augenheilkunde.

finds a satisfactory answer in the assumption that in the former retinal identity or coördination has been *acquired;* in the latter it has not been. To my mind, a much more satisfactory answer is, that paralytic squint occurs suddenly, and is usually met with in adults, whereas concomitant squint develops slowly, and almost always commences in childhood. In the former, therefore, we have annoying diplopia, because there has been no incipient stage during which the individual has been learning to suppress the image formed in the squinting eye; in the latter, this faculty, as has been said, is already acquired by the time the squint is fully formed, so that double vision is rarely complained of. Moreover, it is to be remarked that amblyopia from suppression develops more rapidly in children than in adults, and that even where diplopia is present in the early stages of concomitant squint, it is apt to escape our notice, because in children such visual disturbances cause much less annoyance, and are less apt to be complained of, than in adults.

Again, Schweigger urges that the "suppression theory" demands that the image in the squinting eye shall be always and continually suppressed in order to prevent diplopia, but that he has satisfied himself that this is not the case, for he has met with persons in whom it was impossible to produce diplopia, but who, nevertheless, while fixing an object with the good eye in a dark room, saw the image of a candle-flame whenever, by reflection, it was caused to fall upon the yellow spot of the squinting eye. As I understand the suppression theory, it claims that in the beginning there does occur an active exclusion or suppression of the image produced in the squinting eye, but, that in time, in consequence of this process, structural changes take place in the corresponding visual centres, and that, henceforth, we have to do not with an eye which can see, but by an active effort refuses to see, but with one which cannot see though it would; and, furthermore, that when this active process has produced such a degree, and such a kind of amblyopia, as shall do away with the discomforts of double vision, its purpose is accomplished, and it probably ceases to be operative, and as the attainment of this end does not require that there should be loss of light perception in the region of the yellow spot, so great an impairment of vision as this is not to be expected, and, as a matter of fact, is scarcely ever met with. I cannot admit, therefore, that this experiment of Schweigger's has any significance, or that it tends in the smallest degree to disprove the truth of the "suppression theory."

The absence of diplopia in concomitant squint Schweigger explains, as has been mentioned, by assuming that binocular vision (retinal identity) has not been acquired, or, if acquired, has been forgotten; but, as Noyes and others have pointed out, this explanation is not satisfactory, because in many cases in which under ordinary conditions double vision is absent, it can be produced by causing the image of the object looked at to fall upon a different portion of the retina of the squinting eye by means of a prism.

Schweigger makes a seemingly strong point when he states that no one has ever proved that an eye which once saw well has become amblyopic after the occurrence of squint; for, if the "suppression theory" be true, it is exactly this which does happen in most cases of concomitant strabismus. I cannot believe, however, that he has warrant for so sweeping a statement. Possibly he could find no such cases recorded in medical literature, and this is not so remarkable in view of the comparatively small consideration which this subject has received at the hands of modern writers; but that there are scores of cases recorded in the note-books of ophthalmic surgeons in which there has been observed a progressive decline in the vision of squinting eyes, I do not for a moment doubt. Roosa, in his recent paper upon "The results of the operation for convergent squint,"[1] reports one case, at least, of this character. It is to be borne in mind, moreover, that it is always extremely difficult, and often impossible, to ascertain with any degree of accuracy the acuity of vision of very young children, and that when the eye to be tested is a partially amblyopic and squinting one, the difficulties of the task are immensely increased. It is not to be wondered at, then, since the majority of concomitant squints develop, probably, before the sixth year of life, that there should be a paucity of evidence as to the relative acuity of vision of eyes before and after they have learned to squint.

Schweigger's statement that only thirty per cent. of squinting eyes exhibit amblyopia is, I think, scarcely in accordance with the facts; certainly my own experience does not confirm this.[2]

If we turn now to the other aspect of the question, and ask what evidence there is in favor of the view that the amblyopia is produced by the squint, we shall not find the "suppression theory" so devoid of sustaining testimony as Gräfe and Schweigger would have us believe.

In the first place, the character of the amblyopia which we find in squinting eyes is significant. If we ask ourselves what must be the chief sources of annoyance to an individual who has just begun to squint, after having previously enjoyed good binocular vision, we shall find that he has two especial difficulties to contend with—one, the doubling of every object upon which he fixes his attention, in consequence of the false position of the retinal image of this object in the squinting eye; the other, the confusion of vision which results from the images of *different* objects falling upon *corresponding* retinal points, especially in the region of the yellow spots. To get rid of these annoyances he has a twofold task to accomplish—to eliminate the diplopia, he must teach that portion of the retina of the squinting eye that habitually receives the false image of the object which he looks at not to take cognizance of this image; to prevent the image of some object which he is not regarding from being (mentally) superposed and fused with that of the object which

[1] MEDICAL NEWS, Feb. 6, 1886, vol. xlviii., No. 6, pp. 141 et seq.

[2] The sight of the squinting eye is below that of the other in about eighty per cent. of the cases (in which the vision is given) reported by Dr. Roosa in the paper referred to above.

he is regarding, he must ignore all images formed upon the yellow spot of the squinting eye. The successful accomplishment of this task will result in the production of an amblyopia in the squinting eye, which will be regional in character, being most marked in the neighborhood of the macula and over that portion of the retina which receives the false image (so called) of objects regarded by the other eye, and least developed, or altogether absent, in the peripheric parts of the retina which are not concerned in the common visual field. Now, as a matter of fact, does the amblyopia which we find in squinting eyes exhibit these peculiar characteristics, for, if it does, it affords the strongest possible evidence, of itself almost conclusive, that it has been produced by the squint, and that it is not a congenital defect, since such characteristics would be exactly what the one hypothesis would lead us to expect, whereas they would be utterly inexplicable in accordance with the other. I need scarcely say, what every one knows, that its features are, indeed, just such as I have described, central vision and that which corresponds with the part of the retina upon which the false image falls, being especially bad, while peripheric vision, in the direction in which we should expect it to be best, is so good that, as Schweigger, himself, testifies, it helps materially the sight of the individual by enlarging his general field of vision.[1]

Again, the fact that such a monocular amblyopia as we find in squinting eyes, without structural changes distinguishable with the ophthalmoscope, is almost never met with except in strabismic individuals, indicates decidedly that when it occurs under such circumstances it is produced by the squint; for, if it were a congenital defect of such common occurrence as to be a frequent factor in the production of strabismus, it could hardly happen that we could not meet with it quite often in individuals who do not squint. In testing for glasses, especially, it should not be a rare experience to encounter it. That it is, however, an extremely rare occurrence, I think all will agree. Schweigger, it is true, claims to have met with a large number of such cases, but I cannot help thinking that in many of these complicated errors of refraction, which it had not been practicable to work out, were the real cause of the imperfect vision.

The almost immediate restoration of binocular fixation which we frequently see after successful operations for squint, when the amblyopia has not reached too high a grade, is another circumstance which favors the exclusion theory, or, at least, militates strongly against the theory of non-acquisition of retinal identity and the correlated doctrine of congenital amblyopia; for, assuredly, if there had been a failure to establish retinal identity in the first years of life (supposing, for the sake of the argument, that it is an acquired, and not an inherited law), it would be absurd to believe that in later years it might be acquired within the space of a few days.

The theory of congenital amblyopia has doubtless received more general acceptation than would otherwise have been the case, because there are many who think that it affords a more satisfactory explanation of the development of concomitant squint than had been offered previously. While recognizing that a monocular amblyopia would greatly facilitate the development of a squint, if the other conditions favorable to its formation were present, I cannot agree with those who think that Donders's explanation of the origin of convergent squint is insufficient or unsatisfactory. In my opinion, if there be one fact in ophthalmology well established, it is that concomitant convergent strabismus is "chiefly dependent upon hypermetropia."[1] Because hypermetropia is (almost without exception) the essential factor in the production of this variety of squint, it does not follow, as some would have us believe, that all hypermetropic individuals must necessarily be strabismic. That hypermetropia is a far more common condition than convergent squint, Donders fully recognized, and his explanation of this fact —of why some hypermetropes squint, and many others do not—is, to my mind, entirely satisfactory.[2]

In conclusion, I would suggest that, until more convincing evidence is adduced in favor of the congenital amblyopia doctrine than has yet been brought forward by its advocates, it will be judicious for us, in the clinical management of cases of concomitant strabismus, to act upon the older theory—that the squint is the cause of the amblyopia—and, therefore, to give our patients the benefit of the promptest surgical interference.

[1] Schweigger mentions, as a further proof that the squinting eye is used for vision, that strabismic individuals do not have the same difficulty in estimating distance as monoculars; but I am inclined to question the accuracy of this observation; at least, I cannot, in accordance with any theory of binocular perspective with which I am familiar, comprehend how such could be the case.

[1] Compare the paper of Dr. Roosa's referred to above.
[2] Accommodation and Refraction of the Eye, pp. 294 et seq.

RADICAL OPERATION FOR STRANGULATED INGUINAL HERNIA; RECOVERY.

By MARY A. SMITH, M.D.,
of Boston.

The literature on this subject, and the various methods employed, have been so fully reviewed in recent numbers of the *British Medical Journal*[1] by Wood, Spanton, Vincent, Jackson, and others, that a repetition here seems hardly necessary.

Since, however, the operation has not yet been fully accepted by the majority of surgeons, it is right that every case operated upon should be fully reported.

The following case is of special interest on account of the complications attending it, prior to the final operation.

Case.—Ellen S., forty-three years old, Irish, widow. Has had two children. Health generally good. About three years ago first noticed a "small lump" in the right groin, but as it gave her no inconvenience, she thought nothing further of it. Last summer she had several "bilious" attacks, at which times she would notice a temporary tenderness in the right groin.

[1] British Medical Journal, 1885.

October 15, 1885. After lifting a hod of coal patient began to vomit. The vomiting and retching lasted twenty-four hours, and the lump in the groin grew much larger and became quite painful. The bowels moved slightly the following day, but there had been no movement since, when seen six days later, nor any further vomiting. Thinks she passed flatus daily. Had eaten nothing for a week except two crackers, with a little tea and water. Continued to work as a cook until October 20th, when pain and weakness obliged her to leave her place. She walked about a mile to a friend's house, and the next day applied at the New England Hospital Dispensary for relief.

Patient looked pale and hollow-eyed, but there was no marked expression of anxiety. Abdomen was somewhat distended, but not sensitive to pressure, except in right inguinal region, where there was a tumor measuring sixteen by twelve centimetres. The tumor was parallel to and just above Poupart's ligament, elevated above the surface and of hard consistence, giving no impulse on coughing and no fluctuation. The skin was red, hot, and œdematous. Patient was sent home and told to go at once to bed. When seen at 4 P.M., the temperature was 103° F., pulse 120, skin clammy. Tumor was less tense, and an impulse on coughing, and gurgling were now quite perceptible. Two enemata brought away a very moderate amount of scybala and considerable flatus. On account of the local inflammation no taxis was employed, but patient was ordered to remain in the recumbent position and was given only scanty liquid diet. An ice bag was applied to the hernia, and a suppository of opium, 0.06 grm. given.

22d. Morning temperature 101°. Pulse 84. Had passed a restless night. Ice bag had been comfortable to her, and tumor was softer, skin less red. During the succeeding week there was a steady improvement in all the symptoms. The daily large enemata usually brought away a small amount of fecal matter, flatus passed freely, temperature fell to 99.8°, pulse to 76. The signs of local inflammation subsided, and the tumor measured eight and one-half by ten and one-half centimetres. The patient's strength was chiefly sustained by means of rectal alimentation.

On October 29th, without any apparent cause, the tumor suddenly increased in size and became painful, the temperature rose to 103°, pulse to 100, and there was some nausea. A large enema of oil, followed by one of water, brought away only a few scybala. On the following day the temperature was 103.8°; pulse 120, irregular. The hernia now measured nineteen by ten centimetres, and was again quite sensitive to touch, and the skin reddened.

31st. Dr. A. T. Cabot saw the patient in consultation, and agreed to the administration of repeated small doses of castor oil. As signs of obscure fluctuation were now present in the tumor, he advised the use of poultices, to be followed as soon as possible by a free incision. An enema now brought away a large dejection, containing the seeds of some grapes which had been eaten three weeks before. The general condition remained unchanged until the following day when it was time to open the abscess. An incision about seven centimetres long was made from a point corresponding to the external ring and extending outward over the tumor, giving exit to about six ounces of fetid pus and some gas. The hernial sac was found highly injected and adherent to the surrounding tissues. A minute perforation allowed the escape of a small amount of thin feces. Irrigation with a warm solution of potassium permanganate was continued until the abscess was thoroughly cleansed, the cavity was then packed with iodoform gauze and covered with salicylated cotton and a bandage. No attempt was made to deal with the intestinal perforation, as being so small it would probably close of itself.

Later it became necessary to make a second incision about two centimetres inside of the anterior superior spine of the ilium, as the upper part of the abscess was not sufficiently drained through the lower opening.

The patient's general condition now quickly improved, the temperature returning to normal.

The abscess was daily irrigated and dressed as before, and there was no escape of gas or feces into the wound after the second day.

On November 6th, a dose of castor oil was followed by a large movement of soft but formed feces, and from this time on the bowels were regulated with pulvis glycyrrh. comp. The appetite now returned and she was allowed to have solid food. The wounds soon granulated up to a level with the surrounding surface, and cicatrization progressed rapidly. The hernia remained as a small protrusion between the two cicatrices.

On November 13th, patient was allowed to sit up in bed for the first time. That night she complained of great pain on the right side of the abdomen. Next day the temperature was 101°, pulse 104, respirations 40, and the pain had become very severe. As the hernial protrusion had now disappeared these symptoms were attributed to the breaking up of some slight adhesions consequent upon the somewhat forcible return of the bowel into the abdominal cavity which probably took place as the result of sitting up. Opium and repeated mustard poultices relieved this condition, and in the course of a week, after the application of a properly fitting truss, the patient was allowed to be about, and soon regained flesh and strength.

December 24th, I was again summoned, and found that Mrs. S., after ironing on the 22d, had begun to vomit and noticed a sharp intermittent pain in the groin. Bowels had last moved on that morning. The retching and green vomiting had continued for thirty-six hours but were now less frequent. The hernia was found protruding below the truss, but was not inflamed or specially sensitive. Copious enemata brought away neither flatus nor feces, and as hot poultices and opium did not relieve the symptoms, an operation was decided upon.

On the morning of the 25th, therefore, the patient being etherized and the usual antiseptic precautions being observed, an incision was made over the tumor and the tissues divided until the sac was reached. This was found to be everywhere adherent to the surrounding structures. Much time was neces-

sarily consumed in careful dissection, at the completion of which reposition was found to be still impossible. The sac was now opened and the intestine thoroughly examined, it was highly injected and distended, but glistening, and after incision of the ring it was returned to the abdominal cavity. The sac was now grasped with clamp-forceps and torsion made after the manner of Ball,[1] resistance being marked after three half turns had been made. The pedicle was ligated with carbolized silk, and the remainder of the sac below the ligature cut off. A continuous suture of strong carbolized catgut was then employed to unite the pillars of the ring, and fix the stump. To secure additional firmness, one silver wire suture was passed through the pillars and pedicle, its ends being twisted and cut rather short. The superficial tissues were then carefully united by eight carbolized silk sutures, the silk of the lower cicatrix, which had been dissected out in freeing the sac, being utilized for the insertion of a drainage tube. A strip of iodoform gauze was placed over the line of sutures, and covered in by rubber adhesive plaster, and an antiseptic dressing.

Patient recovered quickly from ether, and had no nausea.

Drainage tube was removed on the third day, and the stitches on the seventh. Union by first intention took place throughout the wound with the exception of a small place where the drainage tube was inserted, and this soon granulated out.

Castor oil was administered on the fourth day, and was followed by a free evacuation.

Convalescence was soon established, the patient sitting up on the fourteenth day.

March 16, 1886. The patient is now working as cook and laundress, and shows no signs of any return of the hernia.

MEDICAL PROGRESS.

BISMUTH SALICYLATE. — In view of the satisfactory results obtained by Solger and Vulpian from the use of this salt, and the diverse experience of others, LANGGARD calls attention to the fact that the salt is found commercially in two forms, one of which is medicinally inefficacious. The two salts are the acid salicylate and the subsalicylate of bismuth. The former contains forty-one per cent., the latter twenty-four per cent. of salicylic acid. The basic salt (the subsalicylate) is the useful form, and is prepared by washing the commercial salt with distilled water until the wash water gives no violet reaction with ferric chloride.—*Deutsche med. Wochenschr.*, July 3, 1886.

WINTER INDIGESTION.—In an opening address delivered before the Section of Medicine at the Brighton meeting of the British Medical Association, DR. W. H. BROADBENT spoke as follows on the topic above indicated:

As cold and damp weather sets in, there are many persons who begin to suffer from pain after eating, and flatulence; or these symptoms may not set in till later in the winter, when the cold and short days have reduced the vital powers. Very frequently the connection between the indigestion and the season of the year is not recognized, and the subjects of it simply look upon themselves as liable to dyspepsia, which they associate with certain articles of diet, instead of with the winter, or attribute it to want of exercise and fresh air. As is well known, however, cold, and especially cold with damp, will inhibit digestion, sometimes so completely that a hearty meal, eaten with avidity after a cold drive, will be vomited almost unchanged hours afterward, but this takes place more frequently in a minor degree, sufficiently to give rise to discomfort, and a sense of distention, or the cold will inhibit the hepatic functions, and cause constipation.

Now in all such cases it is not the food which disagrees with the stomach, but the stomach which disagrees with the food; and the appropriate treatment is not levelling down the nourishment to the digestive capacity of the stomach, but the bringing up of the functional energy of the stomach to the requirements of digestion, by extra food of a stimulating character, such as beef-tea, or an egg-flip, between meals, by stimulants at meals, and by tonics. So with regard to winter indigestion; winter is not the time for cutting off food, when it is required in larger amount to neutralize the influence of external cold. What is wanted is protection from the depressing influence of cold, or the means of neutralizing it.

It is quite true that most people eat far too much, and, again, that with regard to the stomach, as well as to all other organs and parts of the body, the principle of functional rest is of primary importance in dealing with disease; and restriction of food, and even temporary starvation is often necessary; but we must distinguish, and not starve those who are suffering from inadequate nourishment, or employ treatment for catarrh, or ulcer, or organic disease, when nothing of the kind is present. —*British Medical Journal*, August 14, 1886.

THE RELATIONSHIP OF BODILY AND MENTAL PAIN. —In the opening address before the Section of Psychology at the August meeting of the British Medical Association, DR. T. S. CLOUSTON presented the following suggestive account of the relation existing between neuralgia and melancholia:

In hypochondriasis we have a disease where there is neither acute bodily nor intense mental pain, but a combination of both in a modified and mixed-up way. No one who has seen a strong intellectual man pass through an attack of hypochondriasis, or of melancholia of the hypochondriacal type, and seen him recover again, can doubt that these were real diseases, caused by disordered energizing of the brain-cortex, however much the symptoms during the attack seemed mere "imaginations," and the strange conduct appeared controllable by the will, if the patient had chosen to exercise it. But there are few mental diseases where a man's normal volition, his feelings, his habits, and his power of working, will be more inhibited than in this. The pains and discomforts, the imaginary disorders of function, and the general sense of organic ill-being of the hypochondriac, I look on as resulting from an equal disturbance of the mental and sensory portions of the brain-cortex; just as in ordinary melancholia there is an unequal disturbance, the mental portions being most

[1] British Medical Journal, Sept. 6, 1884.

affected. No doubt, the areas that control and specially represent the organic viscera, and their special nerve-ganglia are specially disturbed in function in these cases.

From the prophylactic point of view, the general association of melancholia with sensory disturbances has a special value. Some pain or sensory perversion usually preceding the mental disease, the physician can take early measures of prevention. How many attacks of melancholia could be averted if proper measures were only taken in time!

It appears to Dr. Clouston that physicians in general practice frequently do not realize the significance of slight mental depression, accompanying or following neuralgia or sensory perversions, and that psychiatrists often do not sufficiently think of the sensory symptoms in the study and treatment of melancholia. The borderland between neuralgia and melancholia he looks on as a very slight one indeed. They are both manifestations of one type of the neurotic diathesis. The seat of both is in the brain-cortex, and in the same part of the cortex, though not in the same cells. The actual cortical conditions under which the mental and the bodily pains arise would appear to be the same; therefore, it seems clear that they should not be studied or treated apart from each other.—*British Medical Journal*, August 14, 1886.

Essence of Turpentine as a Styptic.—Bodier states that he has frequently arrested serious epistaxis by the use of tampons dipped in essence of turpentine, introduced simply into the nostrils. The essence is partially vaporized by the body temperature, and in this state reaches the most unaccessible portions of the nasal cavities. He has also arrested, by the internal administration of the same agent, intestinal hemorrhages, and has found it of great service in checking bleeding from the gums. In his experience this drug is a more efficient styptic than the perchloride of iron.—*Journal de Médecine de Paris*, August 1, 1886.

Chloride of Sodium in Bright's Disease.—Dr. Allard Memminger, of Charleston, S. C., highly lauds this use of the drug in the *New York Med. Journ.*, July 31. He has tried it, so far, in only four cases, but his observations are of value, because it alone was used, to the exclusion of all other drugs. At first he orders ten grain doses of the chloride, contained in gelatine capsules, three times a day, and, if the state of the case allows, by preference one hour after or before meals. He generally reverses each day the order of giving; thus, if one day the capsules are given before meals, the next they are prescribed after. If the patient complains of no nausea, he allows him to go about; but at the slightest intimation of a sick stomach, he orders him immediately to assume the recumbent posture, and there remain for an hour or so, after which this temporary ill-feeling always subsides. The second day of treatment he increases the dose to two capsules three times a day, and every other day he increases by one capsule until the patient is taking five capsules three times a day. About this time the good effects of the treatment will be apparent, not only from the improved subjective and objective symptoms of the patient, but from the improved condition of his urine. Albumen will, of course, at this period still be found in abundance—that is, if the case is at all a grave one; even here, however, if a gravimetric examination be instituted a decided improvement, not so much in the absolute as in the relative decrease in albumen, is noted.

At this juncture he orders the chloride to be diminished in quantity, and he has so far found that after the system has thus been brought fully under its influence, it requires but two capsules, three times a day, to keep up the desired effect. If at this stage of the case there is any decided nausea or disinclination to take the medicine, he stops the treatment, and in the interval gives one or two alterative pills, after which he proceeds again to a resumption of the chloride. Should albumen again increase in the urine, urea and chlorides diminishing, he immediately resorts to large doses, thus bringing the patient once more under the influence of the chloride, after which it is again reduced.

The effects of this treatment are most marked. Headache, œdema, low spirits, general weakness, and anæmia, give way to just a reverse order of things, and the patient, who a few days before was most gloomy and desponding, is now full of life and hope.

Thus has it appeared to him in each of his four cases, and, if he has been led to express views that to many appear extreme, it is because his convictions are based upon clinical observations which, up to this time, he has never had the pleasure of recording with any other form of treatment. He would, therefore, urge a thorough trial of this therapeutical agent by the profession, on the following grounds:

1. It is harmless if properly administered.

2. Its effects are comparatively uniform, provided it is given for a sufficient time. That he has so far used it only in chronic cases of no long standing does not, in his opinion, militate against its beneficial effects; for, even should it not be found a cure for Bright's disease, may it not become an important article in our medical armamentarium — indeed, if only an ameliorator of man's sufferings and a prolonger of his life?

3. It may be employed as an adjunct to all recognized methods of treatment without detriment to the patient.

A Research on the Reality of Reichenbach's Flames.—Prof. Wm. H. Pickering, of the Massachusetts Institute of Technology, has presented the following report to the American Society for Psychical Research, which appears in its *Proceedings* for July, 1886.

In the experiment described below, an electro-magnet was employed, with coils measuring eight inches long by five in diameter, and with the pole pieces about half an inch apart. It was placed in a dark room, the walls, floor, and ceiling of which were painted black, and all the cracks covered with rubber cloth, so that not a ray of light entered. A powerful current was passed through the coils of the magnet from a two-light Brush dynamo. After sitting for half an hour in absolute darkness, a faint greenish light was seen in front of the observer's eyes. But it was found that this was quite independent of the magnet, and that it did not disappear when a screen was placed between the magnet and his eyes. When the current through the coils was made or broken by an assistant, no perceptible effect was produced. A person totally unacquainted with physiological optics might readily mistake the subjective phenomenon for an objective reality; but the simplest tests, properly

applied, would distinguish between the two. There was a very powerful permanent horseshoe magnet in the dark room, but no glow could be seen in connection with it.

In the above described experiment, as I was the only percipient tested, it should be mentioned that my eyesight is unusually good in the dark, as is shown by the fact that I can see eleven Pleiades with the naked eye, where many people see only six. If the flames, therefore, were visible to all persons with more or less distinctness, and were not exclusively a nervous phenomenon, I certainly should have made a good subject. As, however, no flames were seen, and the apparatus employed was fully as powerful, if not more so, than that used by the English society, the experiment seems to confirm the view that, even under the most favorable conditions, the flames, if they exist at all, produce no effect whatever on the senses of a normally constituted person.

The Pathological Histology of Compensatory Hypertrophy of the Kidneys.—Lorenz has made direct micrometric measurements of the histological elements of the kidneys in seven cases of experimentally induced compensatory renal hypertrophy, with the following results:

The hypertrophy consists chiefly in an increase of the cortical substance of the kidney, and, to a much less degree, of that of the parenchyma. The cortical increase is caused in young animals by both hypertrophy and hyperplasia (numerical hypertrophy), while in older subjects the increase in size is due to simple hypertrophy of the elements.

The convoluted tubules were always enlarged, and the epithelium is thicker and wider than in normal subjects. The relatively slight increase of the parenchyma is conditioned by enlargement of the lumina of the straight tubules without increase in the size of the lung epithelium. No hypertrophy of the connective tissue or capillaries was found.—*Centralbl. f. d. klin. Med.*, July 31, 1886.

The Treatment of Rabies with Hoang-nan.—According to the *Gazette Médicale de Nantes*, twenty-four cases of rabies have been treated with hoang-nan by Dr. Barthelmy and several other medical men of that city or of the department. The first case so treated was in the month of March, 1882, the last in April, 1885. Ten times, at least, the bites, which were most frequently multiple, were situated on the hands, once on the hands and on the face. In the majority of cases cauterization was completely omitted, or practised several hours or even several days after, with not very active agents, such as liquid ammonia, or a solution of carbolic acid. Two of the patients, who were closely observed by Dr. Barthelmy—viz., a man of thirty and a lad of sixteen—presented symptoms of rabic mania: persistent insomnia, anxiety, nocturnal agitation, the desire to run, hallucinations, barking, etc. However, none of these persons felt hydrophobia, nor have any of them, to this date, succumbed. The duration of this preventive treatment was, on an average, twelve days. The total dose of the powder of hoang-nan ingested during this time varied in adults from six to eight grammes. It was scarcely necessary to go beyond one gramme per day to obtain the physiological effects of the medicine—exaggeration of the reflexes, cramps, rigidity, slight trismus. The maximum dose was arrived at progressively, and in some cases the treatment was terminated by gradually decreasing doses. From the above cases the author deduces either that rabies is communicated much more rarely to the human species than is generally admitted, or that the hoang-nan, administered progressively to the physiological effects *during the period of incubation*, sufficiently and efficaciously modifies the nervous system and the entire economy to prevent the evolution of the rabic virus.

Safety of Cocaine in Cataract Extractions.—Dr. G. E. Frothingham presents, in the *Journal of the American Medical Association* for August 21, 1886, an account of thirty-nine cases of cataract extraction in which cocaine was employed, and deduces from his experience the following conclusions:

1. Cocaine relieves the operator from the embarrassments during the operation for cataract that arise from vomiting, also from the agitation of his patient which results from excessive bronchial secretion or stertorous breathing. These are often very troublesome when ether or chloroform is used.

2. The danger to the result which often arises from nausea and vomiting after the extraction, when other anæsthetics are employed, is very surely avoided when cocaine is selected as the anæsthetic agent and is properly used.

3. The danger arising from the depressing effect of cocaine upon the nutrition of the cornea is no greater than in cases where ether or chloroform is used. The depression of the circulation which often arises from either of them, may affect very injuriously the corneal nutrition.

4. The disturbance of the circulation of the interior of the eye, and consequent danger of panophthalmitis from this cause, is probably less in using cocaine for this operation than in resorting to general anæsthesia.

5. The danger of sepsis and consequent panophthalmitis from the use of cocaine may be avoided by using only fresh solutions.

Measurement of Lower Limbs.—Prof. C. L. Ford, of the L. I. College Hospital, called attention, in 1862, to the fact that the lower limbs were not always of the same length in the human subject. This statement induced anatomists and surgeons to make an extended series of measurements, and the results confirmed the opinion expressed by Professor Ford. Garson, in the *Journal of Anatomy and Physiology*, sums up these observations. In seventy skeletons examined, he found the lower limbs equal in but seven. His measurements show that in 54.3 per cent. the left limb was longer than the right; in 58.5 per cent. the left thigh-bone was longer than the right. The right tibia was longer than the left in 41.4 per cent., and the two bones were found equal in but 10 per cent. The difference in the length of the lower limbs varies from one-eighth of an inch to one inch and five-eighths, without any deformity being recognizable. In a series of measurements of the collar bones, only six, in twenty-two cases examined, were found to be equal.

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SATURDAY, SEPTEMBER 4, 1886.

THE MALARIAL GERM OF LAVERAN.

NEARLY six years ago LAVERAN, a French Army Surgeon, announced to the Paris Academy of Medicine that he had discovered, in the blood of patients affected with malaria, an organism which was possibly the germ of the disease. His observations, made chiefly in Algeria, have been extensive, embracing many hundreds of cases, and the full results of his studies have been given to the profession in a work entitled *Traité des Fièvres Palustres*.

At the time of the publication of his early papers, the attention of those interested in malaria was directed to the bacillus malariæ of Klebs and Tommasi-Crudelli, an *ignis fatuus*, which led many astray; and, although Richard in 1882 reported observations confirmatory of those of Laveran, it has only been within the past six months that the papers of MARCHIAFAVA and CELLI and of TOMMASI-CRUDELLI have aroused a fresh interest on the subject. In this country COUNCILMAN has given the question careful study, and, in a paper read at a recent meeting of the Association of American Physicians, states that he has been able to verify the observations of Laveran. STERNBERG was shown the organisms by Celli, in Italy, and has also had an opportunity of seeing them in the blood of a patient in Baltimore. We have been able, without any difficulty, to find these bodies in cases of acute malaria, and the fact of their presence in the blood in this state can be readily demonstrated. The questions of their true nature, and of their relation to the disease, remain under consideration.

The parasite presents several different forms, corresponding possibly to stages in its development. It occurs most frequently within the red corpuscle, but is also met with in the plasma. Inside of the corpuscle the organism presents the appearance of a rounded or irregular-shaped body, either hyaline or else deeply pigmented. The latter form is most abundant, and the dark granules inside the corpuscles serve as indicators or guides for their detection. On watching these bodies remarkable alterations in outline are seen, which seem unquestionably to be vital—*i. e.*, amœboid. All observers lay stress upon this phenomenon as a distinctive feature. The pigment granules also display Brownian movements.

Free in the plasma small amœboid bodies occur, similar, apparently, to those within the corpuscles. Another phase of existence is presented by a ciliated organism, which appears to be the pigmented body above described, provided with vibratile lashes. This form is much less common, having been found in only 92 of 432 cases by Laveran, and in 4 of 24 cases by Marchiafava and Celli. We have also seen a body of this kind which conformed to the description given by the French and Italian observers. In dry preparations of the blood, the bodies in the interior of the corpuscles stain readily with the aniline dyes.

Granting the truth of these observations, we have evidently here an organism of a character very different from that of those associated with the specific fevers. The description is that of a flagellate infusorian, with an amœboid phase of development, and should this body turn out to be the veritable germ of malaria, it will be the first instance of a widespread endemic affection associated with protozoan forms.

Marchiafava and Celli have proposed for this organism the name *plasmodium malaria*.

We hesitate, however, to accept, without further evidence, its etiological connection with the disease. While apparently a constant feature in the blood of acute cases, they are sometimes in such scanty numbers that it may require several hours' searching to find them. On the other hand, Councilman has shown that in pernicious cases the blood literally swarms with these bodies. Marchiafava and Celli claim to have produced, in five cases, typical attacks of ague by the injection of blood of a malarial patient, and they have found the pigmented bodies in the subjects of the experiment. Cultures have failed, and, until we have more positive knowledge of the life history of these organisms, we cannot feel sure that we have here the true germ of the disease. Von Sehlen has published in Virchow's *Archiv* for May, 1886, an elaborate criticism of these views, and holds that the evidence of the dependence of malaria upon a micrococcus, which he had described, is a much more likely view. He doubts the parasitic nature of the pigmented bodies, and thinks

they result from a transformation of the hæmoglobin under the influence of the micrococci.

In view of the lamentable mistakes which have been made in this disease by so many good observers, the most rigid scrutiny should be exercised in accepting evidence, and it is to be hoped that those who have the opportunities and the necessary technical skill will soon place us in a position to give an opinion upon the *plasmodium malaria* as positive, one way or the other, as we now can upon the *bacillus malariæ*.

THE PASTEUR METHOD OF TREATING HYDROPHOBIA.

In The Medical News for June 12, 1886, we called attention to the opinions of Frisch, of Vienna, in regard to the method of Pasteur for the prevention of the outbreak of hydrophobia. We thought it important to do this because these opinions had been entirely misunderstood, or misrepresented, by a certain number of medical journals, which reported Frisch as strongly endorsing Pasteur's method. Very recently we have noticed a repetition of this misunderstanding of what Frisch has really said, and believes, and, curiously enough, it appears at the very time that Frisch is making two new communications upon the subject, which are to be found in the *Wiener med. Presse*, of August 1 and 8, 1886. In the first, Frisch refers to the previous communication, in which he pointed out the want of analogy between the experiments of Pasteur and his application of preventive inoculations to human beings. He also recalls his suggestion that the true test of Pasteur's theories would be to inoculate a number of animals with his specific virus by trephining, and then to apply his protective method. This suggestion was made in the greatest friendliness, on the 29th of April, but we have not as yet heard that it has been adopted by Pasteur. Frisch, however, has not waited for Pasteur to apply this test to his theory. He has applied it himself. The result is what would have been anticipated by those who have regarded Pasteur's theory as illogical and erroneous.

Frisch inoculated sixteen rabbits by trephining, with a virus made by rubbing up in sterilized *bouillon* a piece of the spinal cord of a rabbit dying after an incubation of sixteen days, after inoculation with virus derived from a rabid dog, and conveyed through two generations of rabbits. This is a typical virus, according to Pasteur. In fifteen of these rabbits Frisch made preventive inoculations with what Pasteur calls the "fixed virus"—the spinal cord of rabbits dying after an incubation of seven days, after inoculation with virus derived from rabbits which Pasteur himself had inoculated and given to Frisch. In the case of the first rabbit, the preventive inoculations were begun twenty four hours after the trephining, and, in the case of each successive animal, after an additional interval of twenty-four hours more. This was done in order to determine how long before the outbreak of the expected rabies preventive inoculation would be efficient. One rabbit was not subjected to the preventive inoculation, and served as a control experiment. This animal fell sick on the 18th day, and died on the 21st day after being trephined. Of the animals which were subjected to the preventive inoculations, every one, likewise, died with the customary symptoms of Pasteur's rabies after the usual period of incubation. All but two presented the symptoms of rabies between the 13th and the 19th day, and died between the 14th and the 21st day. Two lived to the 28th and 33d day. The thirteenth, fourteenth, and fifteenth rabbits presented symptoms of rabies before the preventive inoculations were begun. In a second series of sixteen experiments, Frisch attempted to shorten the time required for the eleven preventive inoculations of Pasteur by omitting some of them, so as to render the animals sooner fit for the stronger virus. All but one of these animals died, like those of the first series, of rabies. The escape of this single animal out of thirty-two experimented upon, Frisch thinks, is to be accounted for on the supposition that, in its case, the virus with which it was inoculated did not "take."

To test the specific character of the disease of which the thirty-one died, Frisch inoculated portions of the spinal cord taken from them upon other rabbits, all of which died, with the usual symptoms, between the 9th and 14th days. According to Pasteur's theory, this amounts to a demonstration.

Frisch next tested the preventive inoculations on dogs. He inoculated five dogs with virus derived from a rabid dog, and carried through four generations of cultivation in rabbits, the last of which died after a period of incubation of fourteen days. Three of these dogs were subjected to preventive inoculations, two were not. The latter became rabid on the 12th and 13th days; the first died in thirty-six hours, the second was killed in forty-eight hours. Of the three protected dogs, two died of pronounced furious rabies on the 15th and 18th day after inoculation. The third dog was apparently well on the 23d day after inoculation.

Frisch also inoculated six rabbits, by hypodermatic injection, with portions of the cervical spinal cord of a dog with ordinary rabies—what Pasteur calls "rage des rues." Three of these rabbits he subjected to the preventive inoculations, three were left unprotected, and all alike remained perfectly well when he made his report, four weeks after their inoculation.

The conclusion Frisch arrives at from these experi-

ments, is that neither in rabbits nor in dogs is it possible to prevent the outbreak of rabies by means of Pasteur's preventive inoculations, if infection has taken place. The peculiar force of Frisch's experiments lies in the fact that they were undertaken for the express purpose of testing Pasteur's theory by one who is his friend, and who had every reason to hope for a different result from that which he obtained.

It is a curious coincidence, that the President of the Local Government Board stated, in Parliament, on August 26th, that the Commission appointed by the British Government to examine into Pasteur's method were fully satisfied that his treatment for hydrophobia was effective. Until we have the grounds for this opinion, it will be impossible to estimate properly its value, although it must prove encouraging to those who still hope that Pasteur's method will prove to be trustworthy.

In the discussion of Pasteur's recent announcements in regard to the nature and treatment of rabies and hydrophobia, there has been a good deal of feeling shown by Pasteur's defenders and by his opponents. With this feeling we have nothing to do; but, looking at the matter in as judicial a frame of mind as is possible under the circumstances, we cannot but feel that the true state of the discussion may be still summarized in the expression used in these columns last June, when we stated that there is as yet no good evidence that the application of the theory of Pasteur has rescued a single patient who without his intervention would have had hydrophobia.

DILATATION OF STRICTURE OF THE ŒSOPHAGUS AFTER GASTROSTOMY.

THE advantages to be derived from an operation by which food can be introduced into the stomach notwithstanding the presence of a stricture of the œsophagus are well recognized, but the value of the operation of gastrostomy will be greatly enhanced if it can be made the means of curing the stricture itself. Several surgeons have made attempts in this direction. Bergmann and Schattauer, for example, have succeeded in passing bougies through a stricture of the œsophagus from below upward; and WEINLECHNER has passed a delicate sound down through the stricture, and out of the opening in the stomach. Another method of utilizing the gastric fistula consists in passing a slender sound from above the stricture, and out of the artificial opening, then attaching a thread to its upper end and drawing after it larger instruments. This method has been employed by Weinlechner, who used the thread to draw into the stricture pieces of drainage tube, which were allowed to remain in position, in the hope that their elasticity would have the effect of steadily dilating the stricture. In the only case in which he did this the patient died of tuberculosis. A similar procedure is described by VON HACKER in a monograph on operations upon the stomach, published this year. His plan was to attach a drainage tube to a slender sound, and draw it through the stricture in a state of extension. He believed that when the tube was no longer stretched it would regain its previous calibre, and produce active dilatation of the stricture. It does not appear that this plan has ever been put into practice; and it is easy to see certain objections to it, as, for example, that the elastic tube might break; that its end might double over at the point at which the thread was tied and injure the diseased part of the œsophagus; that it might, if small, become wrinkled and not expand at all; or, if thick, that it might become intolerable or dangerous to the patient.

An apparently much better method has recently been proposed and used by MADYL, who describes it in the *Allgemeiner Wiener med. Zeitung*, for June 15, 1886, as follows: He introduced through the cicatricial stricture of a patient, twenty-two years old, a fine bougie, No. 5; he then anæsthetized the patient, passed a sound into the opening in the stomach, which he had dilated with a sponge tent, found the end of the bougie, seized it with urethral forceps, and drew it down till it protruded from the stomach. He next pierced the upper end of the bougie, which protruded from the mouth, with an awl and attached to it a strong double silk thread twice as long as the bougie. He now drew down the bougie through the œsophagus and stomach and pulled the thread after it. He then tied the upper end of the thread into the lower end of a large bougie, No. 10, drew this carefully down through the stricture, and left it in place for twenty-four hours. In order to make the treatment as little irritating as possible, Maydl took the precaution to draw the upper end of the bougie down into the œsophagus, after having attached a thread to it, which was secured to a pledget of gauze retained in the nose. He also secured the patient's hands, so that he could not pull the bougie out when it proved irritating. In twenty-four hours the bougie was withdrawn through the stomach and with it the thread was drawn down, and was then left in place for three days. At the end of this time a larger bougie was drawn down by means of the thread, and was left in place for twelve hours. The subsequent steps consisted in introducing a larger bougie every second day, diminishing the time which it was allowed to remain, and leaving the thread in during the intervals. In order to reduce to a minimum the irritation of the manipulations, a small quantity of a five per cent. solution of cocaine was swallowed. Maydl found it best to introduce the thread through the nose, and not by

the mouth, because it is less irritating in the former situation.

The obvious advantages of this ingenious method are that when once the opening of the stricture is found, the way to it is never lost. This is sometimes no small matter, as it is common to find an enlargement of the œsophagus above the seat of a stricture, and a small bougie may easily miss the central channel. The retention of the bougie in the stricture is likely to have a similar effect to that of a *sonde à demeure* in the urethra, and to lead to a more speedy resolution of a stricture than could be hoped for from the repeated passage of such instruments.

The tediousness of the old method of dilatation need not be described here. It is more important to note that in a few days Maydl's patient reached a point where he was able for the first time in a year to eat a piece of meat in the natural way, and that the operator hoped in two weeks to be able to pass through his stricture the largest bougies. This success is encouraging, and on its face the method seems well adapted to the treatment of cicatricial strictures of the œsophagus. Of course, much is not to be expected from it in case of malignant strictures.

SOCIETY PROCEEDINGS.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Tenth Annual Session, held at Greenwich, Conn., August 25, 26, and 27, 1886.

WEDNESDAY, AUGUST 25.—FIRST DAY.

MORNING SESSION.

THE PRESIDENT, DR. EDWARD WIGGLESWORTH, of Boston, called the meeting to order, and opened the session with the following

PRESIDENTIAL ADDRESS.

Gentlemen: Just ten years ago, at Philadelphia, I had the honor of calling to order the first public meeting for the organization of this Association. Our specialty for the first time received national acknowledgment. Our guerilla warfare was over, and our subsequent record has been one of unbroken, successive victories over bigotry, error, and ignorance.

But the day of paladins is past and our ranks will admit more recruits. There are still remaining opportunities for more extended instruction of students in medical schools, while the lack of hospital facilities for the proper clinical treatment of diseases of the skin, is a standing shame and disgrace to our municipal authorities, our hospital boards, and to the medical profession itself. "As now arranged nearly everywhere amongst us, these institutions refuse, to a large class of sick persons, the benefits of hospital residence either wholly, or offer them, if received, not, we may fairly say, the best medical skill it is in their power to procure." Some progress has, however, been made. New York has now a special hospital for skin diseases, besides two wards in the Charity Hospital, and Philadelphia has special clinics with beds at three different institutions.

That the workers are ready as soon as they shall have opportunity is evident. Ten years ago our officially recognized representatives were, four professors, five clinical professors, one instructor, and six lecturers; total sixteen. To-day we number seventeen professors, eleven clinical professors, six instructors, and sixteen lecturers; total fifty. Nor do I include genito-urinary surgery, which I regard as a distinct specialty from that of dermatology, which, of course, includes syphilis.

About twice as many cases of diseases of the skin are now annually treated by specialists as there were ten years ago. The contributors to American dermatological literature during the past decade include the best treatises, handbooks, and atlases, the only periodicals, and some of the best monographs of the time, in the English language. Our sole local organization, the New York Dermatological Society, is as active as ever, and the good work which it has already done is constantly increasing.

Two honorary and three active members of our original Association have passed away since its organization. Twelve active members, all living, have been added to its ranks. So much for our material progress and present prosperity.

Other objects of the foundation of our Association have been by no means neglected during the past ten years. There exists to-day a harmony and good feeling amongst us which, but for the personal acquaintanceship resulting from the formation of this Association, never would have existed. We have come into better accord as to the "nature and treatment of skin diseases." Our increased membership proves that our Association is "held as a place of aspiration;" and it has consistently required "independent work in our department" as the essential preliminary step toward the acquisition of such membership. The systematic work of our standing committee upon statistics has already furnished valuable data for comparison, as well as a series of excellent reports upon "leprosy in America." Concerted official effort has done much and will do more to repress the rank luxuriance of growth of dermatological nomenclature and to furnish a "uniform and simple system."

While much has been accomplished, much still remains to be done. The idea of specialism, already rooted, is to be nurtured and trained in the minds of the profession and of the public, and the practical development socially of our specialty itself is to be elaborated in many minor details. The pioneer must no longer prove a martyr. A knowledge of the weaker side of human nature, useful for selfish financial ends, must no longer be allowed to usurp the province of exact scientific acquaintance with disease, inuring to the benefit of our race. The "elaborate division of labor" is "as useful and successful in a learned profession as it is in the mechanical arts," for it is merely a relative question of height of standard. Specialism substitutes quality for quantity, which substitution is the essential characteristic of the civilized man as distinguished from the savage, while the rapidity of such substitution gauges the progress of civilization itself. Medicine is merely that complex whole which results from the combination of all its component parts, and

their individual advancement is the criterion of its own progress.

Science is only exact knowledge. Medicine is that knowledge specially directed to the physical welfare of mankind, and specialism is only that further subdivision rendered necessary by the very various parts composing the individual, and possible by the extension of our opportunities for studying these parts due to increase of mechanical means for enlargement of the fields of our hitherto unaided senses. No one can to-day "take all knowledge to be his province." Science does not culminate in a Jack-at-all-trades, least of all in one whose conscience has become anæsthetized by custom, who confounds his own limitations with the "limitations of human understanding," and his own ignorance with "the immaturity of medical therapeutics." The specialist builds his own boundary wall and cannot, if he would, poach upon the preserves of others. He "distinguishes what he can do from what he cannot," thus filling the old definition of the best physician. He cannot maltreat a patient, and when compelled to confess ignorance and seek superior wisdom, charge the wronged sufferer another and still higher fee for a "consultation," which is in reality a confession. It has been sarcastically called "the sole duty nowadays of the family doctor is to decide what specialist shall be summoned." It certainly is his duty, and a very important one as a man of honor, to decide whether any one, and if so, who can probably accomplish that wherein he admits that he himself has failed. Unfortunately, many know so little that they are even ignorant of how much is known by others; but in many respects the specialist has already raised the average standard of requirement for general practice to such an extent that much of the old routine practice of physicians who treated their patients for the very diseases for which they referred members of their own families to the specialist, has now become punishable malpraxis. But the general practitioner has his revenge in opposing as unnecessary the hospital appointment, and even the private practice of the very specialist to whom he himself flees as "a help in time of trouble."

We are told that "the human body is made up of parts and functions so thoroughly interdependent, that it cannot be parcelled out into defined and isolated regions." It can and it can not. What scientist divides a country into square miles and attempts to become thoroughly conversant with every atom existing in each of those miles? The special divisions of study are rather the flora, the fauna, the geological strata, etc. though all these may pervade identically every mile of the region. If regional surgery is possible, then specialties are certainly not contraindicated. We hear of "appalling pathological conglomerates" due to lack of proper "general medical treatment." Not only "conglomerates," but often single lesions are very variously diagnosticated by different general physicians, and the "conglomerates" are usually merely the aggregated effects of original causes which might have been obviated by proper investigation in due season, on the part of suitable specialists.

The aforetime "consulting physician" meant one who, in addition to his general acquirements, knows more about some particular thing than any one else. We may be sure that his general acquirements had to pay the penalty. To-day, we honestly admit this, and renouncing the practice obtainable by general acquirements, keep to that particular thing of which we know more than others. No one has mental ability enough at the present time to add to the greatly extended knowledge necessary to the general physician, the intensified fundamental acquaintance with detail needed by the specialist. Life is too short for the ablest intelligence to exhaust even any one specialty. The physician may, like Newton, "think the thoughts of God after him," but the thoughts of the infinite upon the smallest molecule of matter, call for more than the limits of a finite existence. The true consulting physician of to-day is the specialist, and he should therefore receive this title at the hospitals with which he is connected, while those ex-physicians, called consulting, but never consulted, should receive their true and proper title of Emeriti.

But enough of the "idea of specialism." The public will, in time, appreciate the absurdity of being content with inferior results in one branch of medicine, because, forsooth, there are so many others in which their medical adviser is equally or more at home. It will reason rather that he who "insists upon doing the work of ten men, manifests a quality of mind which we can only call arrogance, and which challenges for his work severe criticism." Versatility will not atone for crude and imperfect work, any more than will lack of time, hurry of life, keenness of competition, or financial necessity, and it is merely brazen self-assertion which delights "not so much in doing the thing well as in showing how well he can do it."

Believing in the ultimate achievement of all possibilities and in the progress of truth, I have no doubt as to the future of specialism if we are honest and earnest. Not infinite omniscience, but infinite morality is the duty of the specialist, and this conscientiously carried out, will blunt the sharpest dart of the hostile general practitioner. While visions of what yet remains to be accomplished might well lead us almost to despair, a mere glance at the generally prevailing ignorance on the part of both physicians and their patients, shows conclusively that we and our work are imperatively demanded.

Dr. Wigglesworth next considered in detail the duties, in the future, of members of the Association as to the establishment of special skin wards in all general hospitals; as to a revision of the existing nomenclature and classification of skin diseases; as to improvements in the annual volume of *Transactions;* the use of the metric or international decimal system; more extended statistics; the establishment of a permanent committee upon new remedies; the question of fees and the remuneration of physicians by others of the same profession; the desirability of a (proposed) "consistent schematic plan for the report of cases," always accompanied by a summary; and the duties of specialists as to instruction. He mentioned the establishment in New York of a society for the prevention of contagious diseases. Attention was also called to the proposed union of all the special medical associations of America into a general congress.

Dr. E. B. Bronson, of New York, presented an essay

ON ERYTHANTHEMA SYPHILITICUM.

He called attention to certain cutaneous eruptions

of an erythematoid character occurring in connection with syphilis, and desired so far as possible to determine their etiology. A case was reported of a syphilitic patient who developed a peculiar eruption upon the head, hands, and feet. Although the eruption presented no pronounced syphilitic characteristics, it was regarded as due to syphilis, for the reasons that it was shortly followed by an outbreak of well-marked specific efflorescences on various parts of the body, and, moreover, there was a transformation of the eruption upon the head, into infiltrated lesions presenting a distinct syphilitic character. The eruption first appeared on the face in the form of an erythema which was covered with vesiculo-papular efflorescences. Later a similar outbreak occurred on the nape of the neck. The vesiculo-papules broke, leaving excoriated surfaces of a diphtheroid character, from which there exuded an exceedingly abundant, foul-smelling discharge. Soon after, vegetating growths made their appearance, which upon the bearded parts of the face were quite exuberant and resembled condylomata acuminata. Those upon the neck, formed more discrete, tuberous prominences and had the appearance of condylomata lata; while upon the upper parts of the face, the elevations were nummular and had comparatively smooth, though somewhat lobulated surfaces. After a week or two, the erythematous areas, which formed the bases of the vegetating lesions, became the seats of a gradually increasing, copper-colored infiltration. The palms and corresponding surfaces of the fingers, were covered with a deep red, sharply circumscribed erythema, which was followed by lamellar desquamation. A similar eruption occurred in patches upon the soles. The finger-nails were all more or less affected with onychia sicca. Upon the body and limbs several crops of well-marked syphilitic papules succeeded each other, and finally all the manifestations yielded rapidly to mercurial treatment. The preliminary eruption in this case was characterized as an erythanthema dependent in some way upon the specific disease. Other instances of erythematoid eruptions occurring incidentally to syphilis, were referred to as being more or less analogous to the above cited case.

Allusion was made to syphilitic roseola as a possible case in point; then to the preliminary erythematous eruptions observed in hereditary syphilis, *érythème précurseur* of the French, and also to certain forms of coincident or preliminary erythema as described by Hebra, Neumann, Danielssen, Lipp, and Finger. Attention was next called to that class of symptoms which have been characterized as syphilitic erythema nodosum, and three cases of this affection were reported, in one of which the erythematous eruption was apparently succeeded by a syphilitic infiltration which pursued a course similar to that of a breaking-down gumma of the skin.

Finally it was attempted to define more precisely the etiological relations of these various erythematoid eruptions occurring in connection with, and probably as a consequence of, syphilis. It was maintained that probably they were not equivalent in their mode of origin to the syphilodermata, but rather to certain angioneurotic affections, which they closely resembled. The true syphilodermata are always characterized by a specific infiltration and are probably the result of a determination of the materies morbi to the surface. They are, therefore, pathognomonic of syphilis. The erythanthema syphiliticum, on the other hand, is only an indirect effect of the syphilis, the result of reflex irritation of the skin from the action of the disease upon nervous centres, and therefore not pathognomonic of syphilis. The fact that this might be followed by a true syphilitic infiltration *in situ*, was regarded as analogous to the effect sometimes observed of traumatic irritation in syphilitic subjects, where local injuries become the seat of specific infiltrations.

DR. I. E. ATKINSON, of Baltimore, said that as regards pathognomic syphilitic eruptions, a great deal of caution must be exercised. Lesions similar to those described by Dr. Bronson are not of excessive rarity in cachectic subjects and in cases of malignant syphilis, but in his experience, they have always been manifestations of late or tertiary syphilis.

DR. J. C. WHITE, of Boston, remarked that the occurrence of the forms of disease which have been described are so rare in syphilis, we know so little of the nature of erythema nodosum and its causes, and so little of the nature and causes of so-called erythema herpetiformis, which he thinks should be called erythema multiformis, that it seems to him that we must have some more exact data before we can regard these affections as a necessary sequel of syphilis and as anything more than accidental occurrences. A causal relation existing between these conditions and syphilis has not been proven. The early roseolous exanthematous condition of the skin in syphilis is of sufficiently frequent occurrence to be looked upon as a distinct feature of syphilis. This is wholly unlike the rare forms of dermatitis which have just been described.

DR. F. B. GREENOUGH, of Boston, stated that syphilitic roseola seemed to him to be decidedly distinct from other forms of congestion of the skin, especially in one particular, that is during the subsidence of the congestion little points of distinct congestion continue for a long time. These appear to represent the follicles. The points of pigmentation are also an almost constant occurrence. This he had not seen in other forms of affection of the skin.

DR. G. H. TILDEN, of Boston, held, in the present state of our knowledge, that it would be more philosophical to consider the appearance described as accidental than as dependent upon the specific disease.

DR. I. E. ATKINSON, of Baltimore, then read a paper on

RÖTHELN,

which was based upon a review of the literature of the subject, and a study of the reported cases. The disease was regarded as distinct from measles and scarlet fever. The period of incubation varies between two and three weeks. In many cases there is no prodromal stage. There may, however, be prodromata for twelve or twenty-four hours. Catarrhal symptoms are generally absent, but they may be present. Sometimes there is congestion of the throat. Swelling of the lymphatic glands is a peculiar and marked symptom. This swelling is painful, but does not pass on to suppuration. In many cases fever is absent. The eruption first appears on the forehead and face, and in the course of a few hours spreads to other parts of the body. The eruption is more or less irregular, being more intense in some

situations than in others. From the beginning to the disappearance of the eruption is usually three or four days. In the greater number of cases, desquamation fails to occur. Complications and sequela are not unknown, the most common being bronchitis, pneumonia, and gastro-intestinal disorders. Renal affections may follow this disease. Relapses occasionally occur, but not later than the end of the second week. The prognosis is almost always favorable.

The only difficulty in diagnosis is in connection with measles; and in isolated cases a thorough consideration of all the points is essential to a correct conclusion. Very little treatment is required, except in the presence of complications.

On account of the confusion existing as to the nomenclature of this disease, he suggested that rubeola be accepted as its proper title, and that it might be known in popular language as epidemic roseola.

THE PRESIDENT stated that several years ago he suggested that measles be called morbilli, and rubeola or rötheln be used to signify what is termed German measles, and roseola be reserved as the title for the rose-colored spots seen in syphilis and other conditions. There did not seem to be any necessity for the introduction of a new term.

DR. G. H. FOX, of New York, then presented a

REPORT OF A CASE OF LYMPHADENOMA (MYCOSIS FUNGOIDE), AND AUTOPSY.

Mrs. G., aged thirty-three years, the mother of six children. During pregnancy, in the summer of 1881, she suffered with general pruritus, which passed away after confinement in October. A year later, small, flattened, circular tumors appeared in the axillæ and on the breasts. These became moist, and were accompanied with a burning sensation. The eruption disappeared from these situations, and reappeared upon the back and other portions of the body. After the birth of her last child, in February, 1885, a tumor developed at the inferior angle of the left scapula. The lesions on the other parts of the body disappeared, with the exception of two spots on the finger and one on the left cheek. The tumor on the left scapula gradually softened and disappeared.

The patient was admitted to the hospital in October, 1885, and was fairly well nourished. There were at this time numerous tumors over the body, some of which were superficially ulcerated. The worst tumors were on the breast. Hypodermatic injections of Fowler's solution were used without benefit. Chaulmoogra oil was given in increasing doses until forty drops, four times daily, were taken without causing any improvement. The patient died in April, 1886. The microscopical examination gave the usual appearances of these growths. The internal organs were found to be normal.

DR. G. H. TILDEN, of Boston, remarked that, one year ago, he reported a case of this disease. He then said that it was not sarcomatous. Rindfleisch states that he has found a distinct micrococcus inside of the bloodvessels in this connection, and recently this has been confirmed by another observer. It looks as though what we ordinarily know as malignant lymphoma, affecting the lymphatic glands, with deposits in other parts of the body (Hodgkin's disease), is one of the infectious diseases. He should not be surprised to find that this mycosis fungoide is a variety of the same disease, and that it is nothing but an acute infectious disease.

A NOTE RELATIVE TO THE BULLOUS ERUPTION OCCURRING AFTER INGESTION OF IODINE COMPOUNDS

was, in the absence of the author, DR. J. N. HYDE, of Chicago, then read by the Secretary.

Case I.—An infant, seven months of age. Six weeks before coming under observation the child had suffered from a febrile attack, the exact nature of which was not known. Three weeks later the eruption made its appearance. The lesions at first presented the appearance of chicken-pox. The child's face, the dorsal aspect of the hands, forearms, and the scalp, were covered with isolated whitish, split-pea, to marble-sized, flattened, slightly umbilicated lesions, resembling molluscous tumors. The contents of the lesions were inspissated, thick, and grumous, and of such consistency that they did not escape on rupture of the sac. It was learned that iodide of potassium in one grain doses had been administered for the febrile attack. On the discontinuance of the iodide and the use of antiseptic powder, the lesions rapidly disappeared.

Case II.—A lad, fifteen years of age, who had recently undergone an operation for necrosis of the right femur, developed an eruption involving the entire body. There were two distinct sets of lesions. That which predominated was composed of annular circinate plaques, varying in diameter from several centimetres to half a metre. There were also here and there, particularly about the finger-ends, distinct blebs. The patient had been taking iodide of potassium in fifteen grain doses. This was discontinued, and the eruption speedily disappeared.

There are two distinct types, the bullous and the quasi-bullous eruption, produced by the ingestion of iodide of potassium. In the first form the patients are often well advanced in years, often cachectic, and frequently affected with syphilis or other grave disease. In what may be regarded as a second sub-form of this exanthem, there are dimorphic or polymorphic symptoms. Here bullæ are commingled with papules, tubercles, and other patches of disease. The speaker then described other cases of similar eruptions described by various writers, and, in conclusion, presented the following interrogative propositions:

1. Are there not three sub-forms of the bullous exanthema developed in certain individuals after the ingestion of iodide of potassium?

2. Is not the first and most common of these to be generally recognized in persons of advanced age and cachectic condition, the rash being then present in the form of typical bullæ?

3. Is there a second and still rarer sub-form, in which the eruption is displayed in dimorphic or polymorphic manifestations; typical, perfect bullæ being then mingled with papules, tuberoles, scarlatiniform maculations, or with other and different lesions?

5. Is there not a third and rarer sub-form, the quasi-bullous rash, to be most frequently recognized on the face and dorsal aspect of the hands and forearms of infants and children, in which the lesions are semi-solid, slightly umbilicated, and filled with inspissated, yellow-

ish matter, and which may shrivel and desiccate on the suspension of the drug inducing the condition?

5. Is this last described lesion one to be recognized solely as the result of the ingestion of iodide of potassium, never under other circumstances, and one as peculiar to the special condition it represents, as is the gumma to syphilis?

Dr. R. W. Taylor, of New York, said that while the most general eruption produced by iodide of potassium is an acneform exanthem, yet it may cause dermatitis with multiform lesions with bullæ, which may contain serum, pus, or even blood. He thought that some of the cases of extreme dermatitis multiformis which have been described have been due to this cause.

He described a peculiar form of iodine intoxication in a case of gummatous infiltration of the pharynx, in which iodoform had been resorted to as a local application. In the course of two hours it produced a diffuse eruption of the face, neck, and hands; on the hands it assumed an eczematous character.

Dr. J. E. Graham, of Toronto, related the history of a case similar to that described by Dr. Hyde. A man, twenty-two years of age, had contracted syphilis two years previously. Noticing some pimples on his face he secured a preparation of iodide of potassium containing five grains to the dose. The speaker saw him two days after he had begun to use this preparation. He then had a bullous eruption, principally upon the face and neck. At that time it was thought that it was a tertiary manifestation, and he increased the dose of iodide to fifteen grains. Two days later, the eruption on the face was much increased and recognizing the cause of the condition, the remedy was stopped and the eruption rapidly disappeared.

Dr. I. E. Atkinson, of Baltimore, said that he saw a case, one year ago, of what was supposed to be malignant syphilis. The patient had had syphilis, and had been put on the use of iodide of potassium. The lesions continued to increase and after the iodide had been taken for six months he saw the case. There was an enormous formation of scar-tissue over the face and neck. In addition there were bullæ and elevated infiltrated plaques. The appearances presented were unlike those produced by syphilis, and he thought that they were due to the iodide of potassium. The drug was stopped, and in six weeks the ulcerations had healed; the cicatricial tissue, of course, remained, Too much stress cannot be laid upon the dangerous conditions which may follow the administration of the iodides.

Evening Session.

R. W. Taylor, M.D., of New York, read a paper on

PRECOCIOUS GUMMATA.

The following conclusions were presented:

1. Like the osseous affections, the affections of the nervous system and malignant syphilides in general, the gummata syphilæ may be precocious in appearance, occurring as early even as the second month of infection.

2. Of the precocious gummatous syphilide or gummata, there are three quite clearly marked forms, first, the early, general, and copious form; second, the more localized form, which may invade several regions, is usually symmetrically distributed and sometimes even is confined to one region, particularly one side of the face or scalp and the roof of the mouth; and thirdly, a form in which more or less severe neuralgias precede and accompany the eruption, which in many particulars resemble simple erythema nodosum, but which in its etiology is not in any way related to this simple form of eruption, but is a direct outcome of the syphilitic diathesis.

3. That these precocious gummata partake in general of the features of those of later forms, but that they differ in the more acute invasion, in a much more rapid course, and are usually not as profound and destructive in their action as the classical eruption.

4. That of these precocious forms of gummata, there are found to be two varieties, one a non-ulcerative or resolutive, the other ulcerative.

5. That in the treatment of these precocious syphilides, a combination of mercury and iodide of potassium is much more efficacious than is mercury alone.

Dr. F. B. Greenough, of Boston, presented some

CLINICAL NOTES ON SCABIES.

For thirteen years he had had the opportunity of studying a large number of cases of scabies, and had been much interested by the rapid increase in the number of cases seen during the past few years. They had rapidly increased from 3 in 1879, to 160 during the last year. He had during the past year also made inquiries as to the number of members of the same family of whom the patients could give an account as being similarly affected, and had records of 110 such cases, which, with 6 cases seen in private practice, made a total of 276 cases that had come under his cognizance during the past year. The percentage of cases of scabies had increased from 3 per cent. in 1876 to over 13 per cent. during the past year. During the war, the disease naturally increased and the medical officers got a knowledge of it, which they carried with them into private practice after the war was over. The disease being properly treated became so much less frequent that the new generation of physicians saw little of it, and each case not recognized proved a focus of contagion for a large circle. Four-fifths of the cases seen were between five and thirty years of age, and only four cases were over sixty years of age.

The facts which were especially noticed were the few cases in which typical burrows could be found; the great constancy of the manifestations on the penis in male subjects; and the success of treatment. He had used almost entirely an ointment consisting of two parts of carbonate of sulphur, one of carbonate of potash, and three of petroleum ointment, simply cautioning the patients against applying it to inflamed and pustular localities. He referred to the distribution of the eruption as of importance in the diagnosis of difficult cases.

Dr. A. R. Robinson, of New York, said that in some cases in which there was difficulty in the diagnosis, he had reached a positive conclusion by opening a vesicle and examining its contents under the microscope, and finding the young acari or the feces.

Dr. L. N. Denslow, of St. Paul, had seen a number of cases in which no burrows could be found, but under treatment suitable for scabies, they had recovered. He employs thorough scrubbing from head to feet, followed by the application of sulphur ointment. He considered

the complaint known as prairie itch nothing more than scabies.

Dr. E. B. Bronson, of New York, remarked that in many cases he had depended largely upon the elongated character of the efflorescence in making the diagnosis. For three months he had treated all cases of scabies with naphthol, using a fifty per cent. preparation and making one thorough application. This has produced a satisfactory result.

Dr. S. Sherwell, of Brooklyn, had also noted an increased number of cases of scabies, and a large proportion of the cases had been among Scandinavians, leading him to think the increase might be due to want of thoroughness in the cleaning of the ships in which emigrants are brought to this country. As a prophylactic, he directs the patient to sprinkle on the sheet of the bed a teaspoonful of dry sulphur. This acts as a disinfectant and is unpleasant to the acaris.

Dr. H. W. Stelwagon, of Philadelphia, presented some

CLINICAL OBSERVATIONS REGARDING THE VALUE OF RESORCIN, ICHTHYOL, AND LANOLIN IN CUTANEOUS DISEASES.

Resorcin, in eczema, is rarely of benefit, but possesses some power over the itching. For this purpose a five per cent. ointment is useful. In greater strength it is irritating. In tinea sycosis it has proven of some value in ten to twenty per cent. strength. In tinea tonsurans it is inferior to the remedies usually employed. In one case of leg ulcer, healing took place under its use. In a second case, no effect was produced. In seborrhœa and alopecia dependent upon this disease, a lotion consisting of a drachm of resorcin, one or two drachms of castor-oil, five minims of Peruvian balsam, and four ounces of alcohol, was of value. In tinea versicolor, it was found less useful than a solution of hypophosphite of sodium. In psoriasis and in one case of lupus erythematosus the result was negative. In one case of superficial epithelioma, a fifty per cent. ointment produced a good result, in a second case a fair result, and in a third the result was negative. In a case of favus, a twenty-five per cent. ointment, used for two months, produced no decided effect.

Ichthyol. In a small proportion of cases of rosacea and acne vulgaris, a ten to twenty per cent. preparation usually was found beneficial. In eczema it was valueless and irritating. In furunculus it acted with good results in three cases, when applied as a twenty per cent. plaster. In the fourth case it had no effect. It was of service in psoriasis and also in a case of lupus erythematosus. In favus it was used without effect.

Lanolin. In some cases, as an ointment base, this is superior to the ordinary fats in use. Where a simple protective action is desired, it is inferior to vaseline, cold cream, or lard. In chronic cases, where there is infiltration and a degree of penetration is desired, lanolin is especially valuable. The writer stated that, according to Liebreich, a lanolinum purissimum is now manufactured in which the cholesterin ethers are absent. The main disadvantage of lanolin, as now manufactured from sheep's wool, is the strong sheepy odor. In a few acute and subacute cases of eczema, lanolin, for some reason, proved irritating. As a rule, however, it is bland and unirritating.

(*To be concluded.*)

THE AMERICAN SOCIETY OF MICROSCOPISTS.

Annual Meeting, held at Chautauqua, New York, August 10, 1886.

(Specially reported for The Medical News.)

A very successful meeting of this Society was held this year at Chautauqua, and we present abstracts of the papers read which were of medical interest.

Dr. George W. Lewis, Jr., of Buffalo, presented

A REPLY TO SOME OF THE ARGUMENTS THAT HAVE BEEN ADVANCED TO OVERTHROW THE COMMA-BACILLUS OF ASIATIC CHOLERA.

On the 25th of July, 1884, Dr. Koch addressed the Imperial German Board of Health at Berlin on the subject of cholera and its bacillus. He then expressed the belief that the comma-bacillus bears a causal relation to the cholera process: that it gains entrance by the mouth, and depends for a safe passage through the stomach upon some disordered condition of that organ or its function; that the real seat of the disease is the lower part of the ileum, including Peyer's glands; and that up to that time inoculation experiments had given only negative results. He pointed out, moreover, a striking relationship between the course of the disease and the life history of the organism both as regards the remarkably short time required for it to reach a full development, and the equally rapid decline which immediately sets in. His statements were the more valuable because they were based upon some three hundred autopsies performed in the height of cholera epidemics in France, Egypt, and India, and because, not satisfied with even this, he had visited the long stretch of country known as the Delta of the Ganges, where the disease prevails to a greater or less extent throughout the entire year.

From the date of that memorable meeting to the present time, the comma-bacillus has been a favored target at the hands of the skilled and unskilled in this branch of medical research. To attempt an answer to some of the so-called arguments that have been advanced to overthrow the comma-bacillus and its relation to the cholera process would be a mere waste of time, for the promulgators of these theories show by their methods of reasoning their utter ignorance of even the principles upon which the science of bacteriology is based. Such, for example, are those who claim a spontaneous origin for this disease, and likewise those who assert, apparently without any foundation, that the comma-bacillus is only a transition stage in the development of the organism which really causes the pathogenic changes. This idea, he believed, grew out of the fact that inoculation experiments are not altogether positive in their results, although it is generally conceded that the comma-bacillus is in some way inseparably associated with the disease. Those who dissent from the idea of its being the *causa causans* prefer to class the comma-bacillus itself as the harmless stage in the life history of the organism which at an earlier or later stage constitutes the materies morbi. So far as he knew, there is no instance on record of the transformation of one kind of bacteria into another, and in so brief an existence as that of the comma-bacillus, where the stages in its life history must necessarily follow each other in rapid succession, there could not be one pathogenic stage

while all the rest are harmless. It is true that some bacteria—for example, anthrax bacilli—lose their pathogenic properties when subjected to the influence of certain reagents, but a change of form has never been noticed.

The above, however, is an illustration diametrically opposed in character to the one of which we are speaking. Here we would have a harmless intestinal bacterium take on instead of throw off its pathogenic characteristics. Another point not to be overlooked in this connection is that the proportion of comma-bacilli to other intestinal bacteria has been rated as high as ten to one, which would imply that during its brief stage of harmlessness its power to multiply is increased tenfold. This, of course, is contrary to every known law.

Another theory is that the comma-bacillus is the scavenger rather than the cause of the disease—that is, conditions are created by the disease through which, among the many bacteria to be found in the intestine, one kind or another is changed and assumes the qualities observed in the comma-bacillus. The explanation given in the above case is equally applicable here. Our knowledge of bacteria shows us that, so far as form is concerned, they are all remarkably constant. If they were not, successive cultivations outside of the body would cause them sooner or later to revert to their original form. The comma-bacillus has been carried as high as the twentieth cultivation in various nutrient media, and yet no alteration either in form or manner of growth has been observed. If it were only a transitional stage of some bacterium, that fact would certainly be revealed during successive cultivations. Likewise, if it is the scavenger of the cholera process, then as soon as it is separated from the cholera process the germs would cease to flourish. But it is constant throughout.

Klein expresses the view that the cholera process favors the growth of comma-bacilli by preparing a nutritive soil for them, and on this hypothesis he endeavors to explain the striking increase of this particular kind of bacteria. If this is so, then we must start with the understanding that the comma-bacillus exists in the perfectly healthy body; but the most searching investigations have failed to reveal the slightest trace of an organism that in any way resembles it either in form or manner of growth. Moreover, in cases which eventually terminated in recovery, there was manifestly a decrease in the number of comma-bacilli corresponding to the stage of convalescence.

Of course, if it were possible to induce the choleraic condition in animals by the inoculation of comma-bacilli, there would be no room for controversy as to the causative power of this organism. Even if by feeding appreciable quantities of this form of bacteria any derangement of the digestive process were brought about, it would at least give encouragement as to its causative properties. So far from having either of these effects, its action is not perceptible. This seems a strong barrier, and were it possible to bring to account the case of a single animal fallen ill with the disease during any of the epidemics, it would certainly be an insurmountable obstacle to the consideration of the causative relation of the comma-bacillus. But from all the quarters that have been visited by epidemics come unanimous reports as to the exemption of animals from a condition in any way resembling cholera. This carries with it a good deal of weight, which alleviates in a degree the disappointment resulting from the failure of inoculation experiments. It was evident, from careful examination of the intestines, that the comma-bacilli had been killed during their passage through the stomach; in fact, few were found in the intestinal canal, being confined, for the most part, to the walls of the stomach. It is probably true, too, that if the digestive tract of man is free from derangement, he will likewise be able to resist the disease.

While under Koch's tuition at Berlin in the winter of 1884, Dr. Lewis busied himself particularly in the line of inoculation experiments, being quite as sceptical as any one could be in regard to the claims made for the comma-bacillus. The animals used for this purpose were white mice, guinea-pigs, and rabbits. No effect whatever was produced by feeding a pure culture, but when the bacilli were introduced directly into the duodenum, the guinea-pigs and rabbits, some six hours later, manifested most of the symptoms of cholera infection. The mice, however, exhibited no trustworthy symptoms, dying apparently from indisposition. Upon examination of the intestines after death, large numbers of cholera bacilli were found in the region of Peyer's glands, the glands themselves being enlarged and inflamed. These appearances were very distinct in the guinea-pigs and rabbits, but scarcely perceptible in the mice. From a physiological standpoint, there is no apparent reason why the mice should be affected differently from the guinea-pigs and rabbits, and yet throughout Germany experiments upon mice have been unsatisfactory. The small size of the animal, and the consequent care that must be taken in reaching a desirable point of inoculation, will explain in part the failure in a large number of cases. This is evident from the fact that a great many of the mice die from peritonitis rather than from any pathological effect produced by the bacteria.

If we assume that a disease is caused by a specific germ, we cannot think of an autochthonous origin, emanating from any particular locality. Such a specific organism must follow the laws of vegetation, just as the most highly developed plant. It must always propagate itself from something of the same nature, and cannot spring up at haphazard from other things or from nothing. In the case of the comma-bacillus, the home of which has been quite clearly defined, we are forced to trace back the disease that depends upon it to special localities from which this specific microörganism is brought to us.

Mr. Eugene Rau read

AN ACCOUNT OF MICROSCOPICAL EXAMINATION MADE IN TWO FATAL CASES OF TRICHINOSIS IN BETHLEHEM, PA.

On February 8, 1886, samples of pork were submitted to him for examination, the use of which, it was supposed, caused the illness of a family consisting of man and wife and two daughters, five and thirteen years of age. The pork was found to contain trichinæ varying in numbers from two to six, and occasionally as many as eight in a field view. The meat had been freely used for a week from January 6th. An $\frac{8}{10}$ objective with an A eye-piece was used on the microscope for all the examinations made; the field view being about $\frac{1}{12}$ of an inch in diameter.

The daughter, aged thirteen, died after an illness of

five weeks, and an examination of a small portion of the deltoid muscle revealed trichinæ to the number of twelve to eighteen, and in one instance as many as forty-two were counted in the field view. The results of these examinations conclusively show the cause of the disease; no other portions were examined.

In the mother, aged thirty-seven, who died after an illness of nearly eight weeks, the deltoid muscle was found to contain three to nine, the rectus femoris two to six, and the diaphragm one to three trichinæ to a field view. The lungs, heart, liver, spleen, and kidneys were not found to be infected.

The pork used was home-raised, and, according to the owner, the animal did not at any time show signs of being unwell. An examination of two other hogs raised on the premises was made, but no trichinæ were found. For several days, while in water, the human trichinæ showed signs of life, coiling and partly uncoiling when freed from the muscle fibre. Those in the pork being in the encysted condition, showed no activity when separated and placed in the same conditions as the former.

The trichinæ in the deltoid of the daughter were found free in the muscular fibres, while those in the muscles of the mother were encysted. Eight photographs were submitted; all with the exception of one were made with a $\frac{2}{3}$ objective without an eye-piece. Four are from the human subject and four from the pork. The length of the trichina uncoiled was $\frac{1}{30}$th and diameter $\frac{1}{700}$th of an inch.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Annual Meeting, held at Buffalo, August, 1886.

(Specially reported for THE MEDICAL NEWS.)

THE Annual Meeting of the American Association was held at Buffalo this year, and we present abstracts of the papers of medical interest which were read.

DR. BURT G. WILDER, of Ithaca, read a paper on

HUMAN CEREBRAL FISSURES; THEIR RELATIONS AND NAMES, AND THE METHODS OF STUDYING THEM.

It embodied the results of a study of the subject which has been wholly interrupted since 1873, when a paper on the fissures of the carnivora was read before the Association. He believed that, for the present, the attempt to refer the human fissures to a series of arches like those of some carnivora, has not been of use to students, and that the beginner must learn their relative positions and names as a task for the memory alone.

It is easier, however, to treat the cerebral surfaces as regions of an unexplored country, to determine directions and landmarks, and to learn certain fissures before others. The landmarks are the callosum, the Sylvian fissure, and the margin of the hemicerebrum. The first fissures to be learned are the interlobar, then the constant, intergyral, with ental correlatives, then those with no such correlatives; finally, the inconstant, intragyral fissures. He enumerated forty-six fissures, more than have been designated by any previous writer.

His views as to the relations of the fissures were mostly indicated by diagrams with the names thereon. The latter are mostly mononyms, selected or formed from names in common use. The following fissures were discussed in detail: presylvian; exoccipital; lambdoidal; paracentral; paroccipital; meditemporal; precentral; post-central; adoccipital; intermedia; subsylvian. The gyral names were discussed briefly.

In conclusion, he urged that, in contravention of the view and practice of Gratiolet, Meynert, and some others, the brains of monkeys be disregarded as preliminary to the human, and that fœtal brains be preserved and carefully studied.

DR. C. S. MINOT, of Boston, then read a paper on

HOMOLOGUES OF SEGMENTATION OF THE OVUM IN VERTEBRATES.

The ovum divides first into two sets of cells, the small ectoderm and the large entoderm cells. The line of junction between the two is the ectoental line, part of which forms by concrescence the primitive streak, and its homologues. The ectoderm is primitively many layered, and becomes one layered later. The inner cell mass of the mammalian ovum is the true ectoderm, while the supposed ectoderm of the mammalian blastodermic vesicle is really the entoderm. The mesoderm grows out from the ectoental line. The entodermic cavity is always distinct from the segmentation cavity, but the view hitherto prevalent in regard to the homologies of the mammalian blastodermic vesicle, make the two cavities identical. All the variations can be correlated with the greater or less development of the yolk.

PROF. J. H. PILLSBURY, of Smith College, Northampton, Mass., read a paper on

AREAS OF FORM AND COLOR PERCEPTION IN THE HUMAN RETINA.

After describing the methods of observation and apparatus used, the paper discusses the following points.

1. Relation between myopia of the eye and the extent of the area of form vision.

2. Relative extent of areas of form and color perception.

3. Relative extent of areas of color perception for different colors.

4. Some curious irregularities of areas of color perception.

DR. C. S. MINOT, of Boston, offered some remarks

ON THE DEVELOPMENT OF THE HUMAN CHORION.

The human chorion comprises at the third week of gestation two layers: 1, a mesodermic layer consisting of rounded cells embedded in a glistening matrix; 2, an ectodermal pseudoepithelium. The first changes, during the second month, into spindle-celled connective tissue with large, round, granular cells of unknown origin scattered through it. The second undergoes a complicated metamorphosis. The cells proliferate in numerous patches forming several layers; the patches enlarge and fuse to a greater or less extent. The basal layers of the thickened portions give rise to Langhan's cellular layer, and the outer parts undergo a remarkable hyaline degeneration to produce Langhan's fibrin layer. The chorionic epithelium is, therefore, not lost, but only metamorphosed.

DR. H. P. BOWDITCH of Boston, made some remarks on the

VASOMOTOR NERVES OF THE LIMBS.

In most of the recent experiments on the vasomotor nerves of the limbs, the temperature of the skin has

been taken as the index of vasomotor activity. It is evident, however, that by this method transitory changes cannot be recorded and quantitative results cannot be obtained. In experiments made with the plethysmographic method, to which these objections do not apply, it was found that either a constriction, or a constriction followed by a dilatation, or a dilatation of the vessels of the leg may be produced by an electric stimulation of the sciatic nerve. The character of the result depends largely upon the strength and rapidity of the induction shocks used as a stimulus. In the following table are given the results of 909 observations of the effect of stimulations of the sciatic nerve, with induction shocks of varying intensity and rate. The figures in the columns headed —, — +, and + show in what per cent. of the total number of observations the effect of the stimulation of each rate and strength was respectively a constriction, a constriction followed by a dilatation, and a dilatation.

	Weak.				Medium.				Strong			
Rate of Stimulation.	No. of observations	Per cent.			No. of observations	Per cent.			No. of observations	Per cent.		
		—	— +	+		—	— +	+		—	— +	+
0 – 4 in 1″	108	9.3	57.4	33.3	218	7.8	69.7	22.5	142	6.3	69.7	23.9
5 – 16 in 1″	69	31 9	60.9	7.2	153	28.8	58.8	12.4	109	5.5	89.9	4 6
30 – 64 in 1″	62	48.4	50.0	1.6	40	50.0	50.0	0.0	8	37.5	62.5	0.0

It will be observed that with each rate and intensity of stimulation, the result, in at least one-half of the observations, is a constriction, followed by a dilatation; (2) that with an increasing rate of stimulation, the proportion of cases giving a simple dilatation diminishes, while (except with strong stimulations) that of cases giving a simple constriction increases.

With slow irritations it was found that dilatations are more readily produced with feeble than with strong irritations. Experiments with animals whose nerves had been cut several days previously showed that degeneration of the nerve caused the loss of its constricting earlier than that of its dilating power.

It thus appears that the sciatic nerve contains fibres which both constrict and dilate the vessels, but the former effect being more prompt than the latter, both in its appearance and disappearance, the two effects never neutralize each other.

A fresh nerve with a strong and rapid stimulation, offers the best conditions for producing constriction. A degenerate nerve, with a feeble and slow stimulation, offers the best conditions for producing dilatation.

(*To be continued.*)

CORRESPONDENCE.

THE OBSTETRICAL SECTION OF THE BRITISH MEDICAL ASSOCIATION.

The meetings of the British Medical Association, at Brighton, have just terminated with the Mayor's ball on Friday evening, and a temperance breakfast early Saturday morning, at which at least one hundred and fifty members were present. Throughout the week the city was crowded with medical men from all over the English-speaking world.

The addresses, made in the mornings before the whole Association, by Withers Moore, M.D., F.R.C.P., Major J. S. Billings, M.D., F. A. Humphrey, F.R.C.S., and E. D. Mapother, M.D., were equal to any the Association has listened to in former years, while that of Dr. Billings in particular was both instructive in the highest degree, and full of the happiest hits, never allowing the interest of the audience to flag for a moment. The afternoons were devoted to the meetings of the Sections.

Your correspondent's attention was confined almost exclusively to the work of the Obstetrical Branch, with the exception of the addresses made upon the subject of the "Surgery of the Liver," before the Surgical Section, on Thursday afternoon, by George Harley, M.D., F.R.S., J. K. Thornton, Esq., A. Willett, Esq., and Lawson Tait, Esq. These latter communications took the form of distinct papers, detailing the original work of the authors, and they touched upon many widely diverse points. Dr. Harley related cases of acute hepatitis in which he had, with perfect results, punctured the liver with a large trocar about six inches in length, and, as in one instance, drawn off twenty ounces of blood. He also recommended multiple punctures of the capsule in hypertrophic cirrhosis, which he had also found a valuable remedial expedient. Mr. Thornton brought before the Society all the cases in which he had found it necessary to interfere with the liver structure in his abdominal sections. His conclusion was that the liver was far more tolerant of injury than is generally believed by surgeons.

Mr. Willett related a case of cholecystotomy. Mr. Tait followed with a brief address, the text for which was furnished by three tables including the fifty cases in which he had operated upon the liver. The tables were in the hands of the members in the form of proof-sheets. Seven of these cases are set down as "exploratory incision," two of which revealed "cancer," one of the liver, and one of the gall-bladder; three are labelled "tumor," one "hepatic colic," and one "miliary abscess." One "tumor" died of colloid cancer. Following these are "thirteen cases of hepatotomy," all recovered; nine of them were performed for "hydatids of liver," two for "cyst of liver," one for "tumor of liver," and one for "gall-stones." The youngest patient on the list, age seven years, is found here, for "hydatids of liver." The table concludes with "thirty cases of cholecystotomy," twenty-six of which were "gall-stones," with one death. One was a case of "cholœmia," and two of "distended gall-bladder," and one of "suppurating gall-bladder."

The whole table is suggestive, and capable of some

interesting analyses. More than half the operations were undertaken for gall-stones. The average age of those operated upon was nearly forty-five years (44.8), and more than forty per cent. (40.7) were in the forties, while nearly sixty-three per cent. (62.9) were between thirty-five and fifty-five years of age.

The ages of the cases operated upon for hydatids differ more widely than those of any other class, but the average is only thirty-one years, the extremes being seven and sixty-three.

Dr. Alfred Meadows, President of the Obstetrical Section, delivered the opening address on Wednesday afternoon at two o'clock. He first spoke of the tendency in England, Germany, and America to divorce obstetrics and gynecology, and then eulogized the present status of our science, referring more in detail to some of the most recent achievements. The reaction against craniotomy in Great Britain seems to be of the strongest nature. Dr. Meadows spoke of it as an operation "barbarous and repulsive to every religious sentiment," while the Porro method is a distinct advance in the direction of saving life. He quoted Tait's dogma, that in the latter operation there was at least a chance of saving the life of the child, while the dangers of craniotomy were as great to the mother as in Porro's operation. To this frightful operation —craniotomy—nearly two thousand lives and some hundreds of mothers are sacrificed in England yearly.

Dr. Meadows proceeded to dwell most ably upon the moral and scientific bearings of the case, and urged the fact upon the members that here, in this particular field, must we look for some of the greatest advances in the future.

Removal of the *uterine appendages* is an erroneous term, as the *uterus* is the appendage to the organs in question. The startling statistics of this most recent innovation in gynecological surgery call for comment. The subject has important moral bearings, and like all else encroaching upon the moral world, is apt to provoke angry discussion. It clearly has its legitimate field in certain cases of, by other means incurable, nervous disease, in cases of rapidly growing fibroids, and, without question, in distinctly developed ovarian and tubal disease. The operation ought also, in cases where birth *per vias naturales* cannot be accomplished, to take the place of the Porro operation and craniotomy and the many disgusting methods recommended to prevent conception. We must in all these cases aim at greater diagnostic precision, and not be too lavish in our selection of those deemed fit for operative interference.

Dr. Robert Barnes read the first paper on the subject "Alternatives to Craniotomy." This operation was so frequent in Tyler Smith's time, that it numbered one in every three hundred and forty labors, and at one time the perforator was more frequently used than the forceps. The deformities which call for craniotomy arise for the most part in childhood, and, as has been shown in one English town, are to be prevented by hygienic measures, and anti-syphilitic precautions.

Next, after hygiene, comes the induction of labor, either before the viability of the child, or during the last three months; and from the thirty-sixth to the fortieth weeks we have often the alternative of turning. When the patient has arrived at full term with a living child which cannot be brought alive through the pelvis, the alternatives are two, craniotomy or Cæsarean section. In extreme cases of pelvic deformity the latter, or some kindred method, becomes a necessity, but in pelvic contraction of about three inches embryotomy ought not to give a greater mortality than ordinary labor, and, until the chances from the Cæsarean section equal those of embryotomy, the question cannot be considered as solved in favor of the former, which abandons the old moral law that the mother's life is more important than that of the unborn infant. Will the Cæsarean section be improved up to this point? In from three to three and a quarter inch deformed pelves perform craniotomy, and in future induce premature labor. This measure will only be abolished with the triumph of hygiene.

Dr. Kinkead, of the Royal Infirmary of Dublin, ably considered the question, "Can the maternal mortality of the Cæsarean section be reduced to that of craniotomy?" The difficulties in the way of an accurate comparison are great. Consistently with the showing of Parry that in cases of great deformity (two and a half inches) the maternal mortality of the two operations are equal, we should choose the sectional method. The mortality of the Cæsarean section is great, but it is due to the delays, and the blame for this must fall on those teachers who ever assert that it is an operation of almost necessary fatality. In those cases in which no other attempts to deliver have been made, and the operation has been undertaken within the first twenty-four hours, Dr. R. P. Harris has shown that the maternal mortality of the Cæsarean method is but twenty-five per cent., while all tables of craniotomy in two and a half inch pelves show a mortality of from thirty-seven and a half per cent. (Parry) to seventy-five per cent. in carcinoma of the uterus. Shock, hemorrhage, peritonitis, and incarceration of the intestine are the prime factors in causing death after the Cæsarean method. The first is relieved by early operation, the second by elastic ligature, and the second and third and fourth by close approximation of the wounded surfaces.

In the course of the discussion which followed these two papers, Dr. Lusk, of New York, made a very clear statement of the present status of the subject. Deformities below three inches are rare in New York. That method is a welcome one which will relieve us of the horrible operation—craniotomy—which he has often had occasion to perform.

It is a fact that for one hundred years no successful Cæsarean section was performed in the Vienna and Paris hospitals; but what ought we to expect when the natural death-rate at the time was between five and ten per cent? Dr. Harris has shown us that under favorable circumstances between seventy-five and seventy-six per cent. recover, and that all fatal cases result from conditions making the issue almost inevitable. Michælis reports cases in which the woman was operated upon with a razor, another in which the patient was dying, and still another in which the patient was actually a corpse, and yet these are attributed to the natural mortality of the operation.

Porro's operation was at first adopted so widely because it was believed that the wound would, of necessity, gape in the Cæsarean operation. Sänger, however, disproved this, and taught us the conditions of success, reporting four cases without a death. A recent American

operator gave as his reason for choosing Sänger's method, in place of laparo-elytrotomy, for which his case was best adapted, that he did not wish to burden this latter with another death.

These various methods are not rivals, but clearly fulfil different indications. The Cæsarean method must have the preference in favorable cases taken early. The Porro method is best adapted to cases in which the uterus is exhausted, and the presumption is that degenerative changes have occurred. Laparo-elytrotomy is the operation for cases in which, with the head at the brim, the uterus has retracted above it.

Dr. Wilson, of Baltimore, stated that he had not performed craniotomy for thirty years, and agreed with Dr. Lusk as to the various fields he had indicated for these different methods.

Lawson Tait spoke in favor of the Porro method, and thinks we are bound to protect the woman from the future dangers from her two and a-half inch pelvis. Half of the children die anyhow, so why should we argue against an operation which prevents childbearing? Craniotomy too, is just as fatal as the Cæsareon section.

Dr. T. M. Madden, of Dublin, speaking from an experience of twenty years, in the largest lying-in hospital in Great Britain, said that he had never performed craniotomy, and he looked at the question from a moral standpoint; the balance of life should not be poised on the hand of the physician as here. It is but too often as Simpson has said, "Cold steel for the child, and mercury for the mother," to combat the peritonitis.

Dr. T. A. Emmet, of New York, read a paper on "Certain moot Points in Gynecology," and was immediately followed by Dr. Grailey Hewitt on "The Early History and Etiology of Uterine Flexures and Displacements."

Dr. Emmet made a very clear, succinct statement of his views, declaring that versions are but symptoms, and stenosis is a matter of little importance. The relief following the use of a pessary is not due to the correction of a displacement, but to the fact that it takes up the slack in the broad ligaments, and supports the blood-vessels, relieving the congestion. The common symptom of irritable bladder is not due, as so often supposed, to a prolapse of the uterus, but to the traction by the cervix on the utero-vesical folds, and thus, by lifting the cervix with a pessary, relief is obtained. Flexure is often merely an individual habit. Dr. Emmet has observed the most extreme stenoses without accompanying symptoms.

Dr. Emmet recorded a case seen lately, in which the cervix had been divulsed two years ago, and she is now under his treatment for a pelvic peritonitis, from which she has suffered ever since, and he has observed a rapidly growing epithelioma.

If there is one thing his experience in the past fifteen years has taught him, it is this constant association between lacerated cervix and epithelioma. Pelvic inflammation is best treated by small doses of ergot and the hot water douche. Dr. Emmet has not owned a sound for three years and possesses no uterine probe. An analysis of the cases under treatment before and after giving up intrauterine applications, shows a most remarkable difference, in favor of the latter, in the average number of days the cases remained under treatment.

Dr. W. T. Lusk read a paper on Thursday afternoon on "The Proper Moment for the Performance of Gastrotomy in Abdominal Pregnancy." This was followed by Dr. T. H. Aveling on "A Case of Extrauterine Gestation Arrested by Electricity."

Dr. Michael Beverley reported twenty cases of Emmet's operation for "Laceration of the Cervix;" and three for "Procidentia Uteri." The record was an admirable one, showing the clearest insight, on the part of Dr. Beverley, into the etiological factors concerned. In the discussion following, Dr. Kelly pointed out that lacerated cervices were not any more frequent in America than in England and Germany, the sole difference was one of *names* only; all those cases which abroad were labelled and treated as *erosions*, were almost without an exception *lacerations*. And no better illustration of this could be found than in the excellent colored picture in Ruge and Veit's "Erosio Uteri und beginnender Krebs," published in the *Zeitschrift für Gynäkologie*. Here the pictures so generally copied as types of erosions, were typical examples of as many grades of lacerations, the first two requiring puncture and packing or the douche to soften them down, bring the lips together and, by the rational plastic operation, complete the cure. Dr. Kelly also drew attention to the three essential points to be borne in mind in all operations practised on the vagina with a view of retaining the pelvic viscera.

The Section closed with a paper read on Friday morning by Dr. Thomas Savage, of Birmingham, on "Removal of the Uterine Appendages," followed by a timely protest by Dr. Moore Madden upon the same subject. Dr. Savage expressed himself well, and to the satisfaction of the members, who concurred in his views, almost without an exception. The discussion following was of unusual interest, and was participated in by Dr. G. Bantock, of London; Dr. E. T. Davies and Dr. Elder, of Nottingham; Dr. Wilson, of Baltimore; Dr. Imlach, of Liverpool; Dr. Gordon, of Maine; Dr. Gill Wylie, of New York; Mr. Lawson Tait, of Birmingham; and Dr. H. A. Kelly, of Philadelphia. Dr. Wylie's remarks added especial interest, as he detailed some of his good work in dealing with difficult tubal and ovarian cases in New York.

On Thursday Dr. G. Ranney, of Michigan, read an interesting paper upon the treatment of mastitis by compression.

It is impossible to conclude without acknowledging the constant kindness and courtesy the distinguished President and members of the Society showed their visitors, which only ended with a handsome lunch given by Dr. Meadows at the Grand Hotel at the close of the final meeting. Howard A. Kelly, M.D.

Birmingham, August 20, 1886.

CATGUT SUTURES FOR OPERATIONS UPON THE LACERATED CERVIX AND ELSEWHERE.

To the Editor of The Medical News,

Sir: Dr. Robert T. Morris makes a little hit at Dr. Sutton in your issue of July 17th, and makes at the same time a rather sweeping assertion about gynecologists generally which I cannot permit to go abroad unrefuted. Undoubtedly the surgeons who "insert sutures of antiseptically prepared catgut into the lacerated cervix, sprinkle the surface with iodoform, and do not disturb

the womb with frequent washings," are doing the proper thing, and a very clever thing too. But gynecologists, especially abroad, do the same, and he should not make so unqualified a statement representing this as the invariable habit of general surgeons, and only of surgeons, and that gynecologists are absolutely in the dark regarding these simple methods of treatment. Let me say that for many years, certainly five or six years, I have pursued the course he speaks of, and which Dr. Sutton now advocates, never using washes or injections in the after-treatment of uterine or vaginal operations. I have treated all such wounds by a strictly dry antiseptic method—that is, a let-alone method; after an operation antiseptically performed I have dusted the surface with iodoform, covered it with antiseptic cotton or gauze, and so left it until, when silk was used, it was time to remove the sutures, or when catgut was used, I had reason to change the dressing perhaps on the fourth or fifth day, perhaps not until I desired to examine the part. Cleansing of the surface by vaginal injections, washes, etc., I have never insisted upon, and strictly forbidden since antisepsis has been taught.

During the past year I have used catgut to the exclusion of every other material for all operations upon the uterus, vagina, and perineum, and, in part, even for the closing of abdominal incisions. For the past ten years it has been my wish to use it, knowing that theoretically it was the correct thing; but the catgut, as offered for sale, prepared in various ways, was neither a convenient nor agreeable material for use. I always had it on hand, often attempted to use it, but finally gave it up in disgust. I have tried whatever has been recommended: in early years I clung to the silver wire, then to silk, which I have used for the last four or five years, in preference to silkworm gut, kangaroo tail, or whale tendon, which I have tried without discovering any great advantages; I have used silk exclusively, giving other material a fair trial; but since I have seen the catgut prepared with corrosive sublimate, glycerine, and alcohol, I have used nothing else, and I fully agree with the high estimate which Dr. Morris places upon this material, and which is, notwithstanding his assertion, well known to gynecologists, and used almost exclusively by some.

Catgut so prepared is undoubtedly superior to any other material: *first*, it is very strong, almost as strong as silver; *second*, it is less irritating than any other material; *third*, it is as convenient and agreeable to handle as silk; and *fourth*, it is self-removing, and can be timed with almost the exactness of a fuse; by selecting the proper size we can control the time during which it shall bind the parts. It is of the greatest advantage to use a material so nearly allied to the tissues which it holds, and which we are not obliged to watch, lest we run the risk of leaving a suture, and thus keeping an irritant, a foreign body in the parts.

The dry method, which I have for many years adopted for the dressing of recently united parts, is the only one which is really antiseptic, if not aseptic, and this is the only proper method of dressing in the after-treatment after antiseptic operations. Some gynecologists, both in France and Germany, use catgut freely; but I believe no one has used it so exclusively as I have, relying upon it for perineal, and even abdominal operations.

Truly yours,

ST. LOUIS, August, 1886. GEORGE J. ENGELMANN.

NEWS ITEMS.

AMERICAN SOCIAL SCIENCE ASSOCIATION.—The General Meeting of this Association for 1886 will be held at Saratoga, N. Y., from September 6th to 10th, inclusive, opening at 8 P. M., September 6th, with an address by the President, Carroll D. Wright, of Boston. The Department of Education will meet on Tuesday, September 7th; the Health Department on Wednesday, September 8th; the Department of Jurisprudence on Thursday, September 9th; and the Social Economy Department on Friday, September 10th. Papers on scientific subjects will be read by Drs. Grace Peckham, Holbrook Curtis, Valentine Mott, Wallace Wood, T. Munson Coan, all of New York.

THE PASTEUR EXHIBIT AT THE EXPOSITION OF URBAN HYGIENE AT PARIS.—Men and women gape wonderstruck before a table loaded with a hundred or so glass mattrasses in which Pasteur works his *bouillons*. A large sign cautions the public, "Do not touch: very dangerous;" and the concoctions of charbon, hydrophobia, typhoid, and other uncanny microbes are severely left alone. The cages in which the unfortunate rabbits are kept are only seen in photographs, but rabid marrow and dog-rolling cages are there in reality. The latter are made of strong galvanized iron, and provided with rollers, a hook on top, and a perforated bottom. In each cage remained the tin dish used for the prisoner's food; the metal's edges are deeply indented and torn in some places by the teeth of the late occupants, showing but too vividly the horrible disease that carried them off.

PASTEUR'S METHOD.—In the House of Commons lately Charles Thomson Ritchie, President of the Local Government Board, stated that the committee appointed by the government to examine into the Pasteur method of inoculation for rabies was fully satisfied that the French savant's treatment for hydrophobia was effective.

INTERNATIONAL STATISTICS OF THE INSANE.—The conference of the various committees appointed by scientific bodies and eminent alienists, to agree upon a uniform classification of mental diseases, in order to secure the best basis of International statistics of the insane, in coöperation with the International Committee appointed at the Antwerp Congress, held by the Belgian Society of Mental Medicine last autumn, will be held at Saratoga, N. Y., on September 8, 1886, at 10 o'clock, A.M. Dr. Pliny Earle has been invited to preside.

COLDWATER SANITARY CONVENTION.—The time for holding the Sanitary Convention at Coldwater, under the auspices of the Michigan State Board of Health, has been changed from September 23 and 24, to September 9 and 10, 1886.

THE ENGLISH CONGRESS OF HYGIENE will be held at York in September, under the presidency of Sir Spencer Wells.

THE FIFTY-NINTH REUNION OF GERMAN NATURALISTS AND PHYSICIANS will be held in Berlin from the 18th to the 24th of September. A cordial invitation has been isued to those interested in all countries.

HONORS TO MEDICAL MEN.—The Queen has recently conferred the honor of knighthood upon the following gentlemen amongst others: Mr. John Tomes, F.R.C.S.; Mr. Douglas Maclagan, M.D.; Surgeon-General Thomas Longmore, C.B., Professor of Military Surgery at Netley; and Mr. Edward Sieveking, M.D., Physician Extraordinary to the Queen. On the 2d inst., amongst the distinguished colonial visitors who were invested with various Orders, the following were made Companions of the Order of the Indian Empire: George Watt, M.D., and John W. Tyler, M.D.

SUBAQUEOUS VEGETATION.—An interesting discovery has been made in Switzerland of a bright green moss, growing on calcareous rock two hundred feet below the surface of Lake Leman. No other moss has been known so far under water; and how chlorophyl, the green coloring-matter, could have been so richly developed in a place so remote from the light, is a problem; probably the extraordinary clearness of the water enabling the sun's rays to penetrate to a great depth.

THE SCIENTIFIC SPIRIT.—Let those who think they know, without ever having looked to see, review their supposed knowledge and cast their thoughts over again; and if, in the particulars, they find they have mistaken words and fancies for realities, and accepted the dicta of pretenders instead of the evidence of observed facts, let them correct the record, and acknowledge the truth as it is in nature. Moreover, let them remember that he who propagates a delusion, and he who connives at one when already existing, both alike tamper with the truth, and that we must neither lead nor leave men to mistake falsehood for truth. Not to undeceive is to deceive.—DR. T. WHARTON JONES.

THE USE OF GAS COOKING-STOVES is increasing in Great Britain. Many of the Scottish gas companies now let out the stoves at a cheap rate. Dr. Stevenson Macadam speaking of gas-cooking in its sanitary aspects, says: "The wholesomeness of the meat cooked in the gas-stoves must be regarded as beyond doubt. Gas-cooked meat will be found to be more juicy and palatable, and yet free from those alkaloidal bodies produced during the confined cooking of meat, which are more or less hurtful, and even poisonous." A joint cooked in a gas-oven weighs heavier than the same joint cooked in a coal-oven, because the juices are more perfectly preserved in it.

MEDICAL STUDENTS IN SWISS UNIVERSITIES.—The number of medical students in Switzerland appears to be increasing. During the present summer session the total is 675, including 81 women, who are admitted in Berne, Geneva, Zurich, and the preparatory school of Lausanne, but not in Basle. In Berne there are no less than 40 female students; some of the assistants' posts are filled by women. It is remarked that their exercises, or degree theses, are usually selected from theoretical subjects—such as anatomy, physiology, pathological anatomy, and pharmacology—rather than from practical medicine and surgery. The increase in the number of sudents is due almost entirely to an accession from Switzerland itself, the number of foreigners (192) being much the same as in former years. Of the 81 female students, only 10 are of Swiss nationality.

NOTES AND QUERIES.

GUTTA-PERCHA FOR MARKING THERMOMETERS, URINOMETERS, ETC.

For marking thermometers and urinometers that have become indistinct from wear and washing in the one case, and the action of urine in the other, I take an old hard-rubber thermometer case, hold one end in a gas flame until it ignites, and then rub the burning end over the figures, running all the grooves full of melted gutta-percha. After waiting a few minutes for it to cool, I take a sharp knife and cut off the surplus rubber, and leave the grooves filled with black, shiny, insoluble gutta-percha. To mark bone-handled instruments, I scratch, or cut, whatever mark I wish to have on them, and use the gutta-percha as described above. An old gutta-percha button answers the same purpose as a hard-rubber thermometer case.

J. NEELY RHOADS, M.D.,
Resident Physician
Jefferson Medical College Hospital.

Philadelphia, August 31, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 24 TO AUGUST 30, 1886.

WOODHULL, A. A., *Major and Surgeon.*—Granted leave of absence for fourteen days, to take effect on or about September 1, 1886.—*S. O. 197, A. G. O.*, August 25, 1886.

TAYLOR, M. K., *Major and Surgeon.*—Leave extended one month.—*S. O. 195, A. G. O.*, August 23, 1886.

LAUDERDALE, J. V., *Captain and Assistant Surgeon.*—Granted leave of absence for two months, with permission to apply for one month's extension, when his services can be spared.—*S. O. 195, A. G. O.*, August 23, 1886.

GANDY, CHAS. M., *First Lieutenant and Assistant Surgeon.*—On expiration of his present leave of absence, relieved from duty in the Department of the East and assigned to duty in the Department of Texas.—*S. O. 195, A. G. O.*, August 23, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 28, 1886.

CLARK, JOHN H., *Medical Inspector.*—Ordered to special duty, Portsmouth, N. H., and Widow's Island.

KINDLEBERGER, D., *Medical Inspector.*—Ordered to Hospital, Washington, D. C., October 1, 1886.

GIHON, A. L., *Medical Director.*—Ordered to Hospital, Mare Island, Cal., October 15, 1886.

ROBINSON, SOMERSET, *Medical Inspector.*—Detached from Hospital, Mare Island, Cal., October 15, 1886, and wait orders.

SPEAR, J. C., *Medical Inspector.*—Ordered to Naval Laboratory, New York, September 28, 1886.

BLOODGOOD, DELEVAN, *Medical Director.*—Ordered to Hospital, Norfolk, Va., September 29, 1886.

TAYLOR, J. Y., *Medical Director.*—Ordered to Naval Laboratory, New York, September 29, 1886.

DEAN, R. C., *Medical Director.*—Detached from Naval Hospital, New York, and wait orders.

SIMON, W. J., *Surgeon.*—Detached from U. S. S. "Constellation," and ordered to special duty at Naval Academy, Annapolis, Md.

HENRY, C. P., *Assistant Surgeon.*—Ordered to Hospital, Philadelphia, Pa.

FITTS, H. B., *Passed Assistant Surgeon.*—Detached from Hospital, Philadelphia, Pa., and wait orders.

STONE, *Assistant Surgeon.*—Ordered to Receiving Ship "New Hampshire."

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

SUBCUTANEOUS DIVISION OF URETHRAL STRICTURE.[1]

BY C. H. MASTIN, M.D.,
OF MOBILE, ALABAMA.

ORGANIC urethral stricture becomes sometimes so difficult and so obstinate an affection to treat that we are forced to resort to other than the usual methods for its relief. Such being the case, it is not surprising to find that, from the earliest times, dangerous and difficult operations have been introduced for its cure, or rather for its immediate relief: among which are incisions made from the outside, through the integument and urethral wall, dividing all the diseased structures, and leaving the parts gradually to reunite. Such operations may all be embraced in the one general term "External Urethrotomy."

As far back as we have any recorded history of surgery, we find the ancient surgeons, like ourselves, encountering difficulties in the treatment of urethral stricture, and oftentimes unable to gain an entrance into the bladder through the natural channel. Hence, they were forced to resort to the use of the knife, by which incisions were made into and through the urethral walls. Celsus was evidently familiar with such an operation, for in Book vii., Chapter xxvi. of his writings, we find this passage:

"In suppression of urine, if the urethra is stopped by a stone, the prepuce must be drawn out as much as possible, and, the glans being covered, it must be tied by a thread; then, on one side, a longitudinal incision must be made into the penis, and after this the prepuce is let go; for by this means the sound part of the skin covers the incision in the penis, and the urine will be discharged in the natural way."

It is very evident that he certainly intended to speak of *retention*, and not *suppression* of urine, and that the incision was made in the urethra and not into the body of the penis. A natural inference to be drawn from this quotation is that, if Celsus advised opening the urethra to get rid of an impacted stone which was obstructing the flow of urine, he evidently would have advised a similar operation in a case of retention caused by any other obstruction, as, for example, stricture of the canal. Still later than the time of Celsus, we read in the writings of Rhazes in the tenth century, a clear description of such an operation having been done for obstruction of the urethra. Again, Avicenna, who wrote in the eleventh century, mentions puncture of the urethra through the perineum for the relief of retention of urine. These operations appear to have been intended solely to give exit to retained urine, but with no intention or proposed plan of curing the disease which caused or produced the obstruction; the object of the ancients being more the relief of the immediate symptoms than an endeavor to eradicate the disease.

The first reliable mention of an operation of which we have any positive knowledge, which was performed for the cure of stricture, and not entirely for the relief of retention, is the one recorded by Richard Wiseman, in his work entitled *The Ill Consequences of Gonorrhœa*. Here he speaks of having witnessed, in the year 1652, an operation done by Mr. Edward Molins, "which," says Wiseman, "consisted of an incision into the urethra near the neck of the bladder, for retention of urine; that the knife did not readily divide it, for it was as hard as a gristle; the urethra being opened, the urine gushed out, and the wound remained fistulous." In this operation, if we fully understand Wiseman's description, the incision was made into the urethra posterior to the obstruction, and subsequently the incision was carried through the coarctation to its anterior face, a very similar operation to the "boutonnière," a proceeding of which we shall have occasion to speak more at length in the course of this paper.

Again, in the latter part of the same century, we find Soligen performing similar operations, once at Livourne, and again at the Hague. Then we hear of an operation, which was designated "la boutonnière," being done in 1687 by François Tolet, for the relief of retention, but not for the cure of stricture; and he tells us that it was an operation much in vogue "by men of great skill and reputation," and employed by them only in cases of great emergency.

Then, François Colot follows him, operating in 1690 for the cure of impassable stricture complicated with perineal and scrotal fistulæ. From that date onward we find, scattered here and there through the early literature of the profession, only references to the subject, until the year 1730, when Ledran operated upon "a case of organic impassable stricture;" this operation he did at two sittings, and after the following manner: The first day, the perineum was opened down to the urethra, and on the succeeding day he opened into the canal upon the anterior face of the stricture, through which, after gradual dilatation for five days, he passed a bougie on into the bladder; when this had been accomplished, he "slit up the urethra as far as the neck of the bladder." Gradual dilatation was then resorted to, by which the entire length of the urethra was stretched open, and the patient is said to have gotten well.

About the same date, J. L. Petit, on numerous occasions, appears to have performed similar operations for retention of urine, and in some cases he divided the stricture at the same time, with the evident in-

[1] Read before the American Surgical Association, May, 1886.

tention of curing the obstruction. Petit relates a case where he performed the operation for the cure of a stricture through which it was impossible to pass an instrument, although there was no retention of urine, and no fistulæ through which urine could find its way. He cut through the urethra at the face of the stricture, upon a grooved sound introduced down the canal to the seat of obstruction, after which he forced a trocar through the obstruction and into the bladder, following the supposed course of the urethra. He then slit up with a bistoury the strictured portion, tied in a catheter, and left the wound to heal by granulation, which it did in about a month or longer time, and the patient is reported as having been entirely cured. This was probably the first case in which a "sonde à demeure," or retained catheter, was ever used. Petit subsequently resorted to a similar operation in a number of cases, and states that, whenever he has performed "la boutonnière" (as he termed it) for retention of urine, his patients always "regained the freedom of the canal when he comprehended the obstacle itself in the incision." But he is very careful to remark that "the boutonnière is to be shunned whenever the introduction of a sound is practicable."

In 1750, twenty years after the operations of Ledran, Mr. Sharp, of England, described an operation very similar to his, "by cutting in *perinæo* if possible upon a staff," and recommended its performance;[1] but, in 1782, we find him condemning it in no measured terms, and advocating in its stead the suprapubic operation for relief of retained urine, as one less to be feared, and less serious in its results.[2] Only six years after this date—*i. e.*, in 1788—John Hunter comes to the front, and not only advises but urges the operation as the proper one for the cure of strictures complicated with perineal fistulæ; he himself having performed, in 1783, an operation in which he cut upon a staff introduced down to the stricture, and exposed the face of the obstruction, which was subsequently dilated so that the staff was with difficulty passed on into the bladder. This was neither new nor original with Hunter, for in the year 1738 both Astruc and Daran had described the operation as done by Hunter, and again in 1748 called the attention of surgeons to the method; but they both opposed and advised against its performance. In 1786 both Chopart and Desault performed the operation in various ways, but the mortality proved so great, and they denounced it in such violent terms that very few surgeons could be found who were willing to attempt it. Desault writes:

"The operation known under the name of 'la boutonnière,' though apparently better adapted to the nature of the disease, is, almost always, either useless or dangerous. It is useless if the surgeon has been able to pass a grooved director for the purpose of operating, because in such a case he might just as well introduce a hollow sound. It is dangerous if the surgeon has no director to guide him, for then he makes his incisions at hazard, may miss the canal, and divide parts, the lesion of which is followed by more or less serious accidents."

[1] "A Critical Inquiry," London, 1850.

[2] A Treatise on the Operations of Surgery, etc., by Samuel Sharpe, F.R.S., etc. Tenth edition. London, 1782. Chapter xv. pages 77, 78.

Chopart having had no success with the operation, became bitter in his denunciations of the procedure; and the failures, together with the great mortality attending it, about the close of the last century, threw it into such disrepute, that very few surgeons could be induced to perform it. Mr. Sharp, of England, then condemned it, and very soon it fell into disuse in France, and was not again practised in England until about the year 1807, at which time Sir Charles Bell called attention to it as an operation peculiarly adapted to, and required in those cases of aggravated stricture of the urethra complicated by perineal fistulæ: still the operation did not receive favor in England, and we hear little or nothing more of it until the year 1817, when it was revived and introduced into America by the late Dr. Alexander H. Stevens, of New York, who then operated successfully upon a case of stricture by this method after all other means of relief had failed. Then Dr. Jameson, of Baltimore, began to operate in 1820, and by the end of the year 1823 he had performed ten operations without a single death. This remarkable success with a hitherto unsuccessful operation naturally directed the attention of American surgeons to the method, and it was not long before it became popular in New York and other Eastern cities. Dr. D. S. Rogers, of New York, also began the operation in 1823, and very soon laid before the profession the report of twelve operations, all successful. By the year 1843 Warren, of Boston, March, of Albany, Hoffman, Post, Watson, and Buck, of New York, with many other American surgeons, had, by large numbers of successful cases, all done without the use of a conductor, so fully established the propriety of the operation, that it at once became an accepted operation on this side of the Atlantic.

Carefully examining the reports of these cases, we find they were all performed after the method of the "old boutonnière;" that is to say, without a conductor, which goes to prove they were cases impassable to instruments. So, before we investigate the subject further, it may not be out of place to show what is meant by that term, and then analyze the methods which come under that general description.

This operation has been performed in so many ways that we are at a loss to understand the exact idea which the old authors wished to convey when they used the term "la boutonnière." The most explicit description which we have been able to find, is the one given by Desault in his treatise upon the diseases of the urinary organs; this is, to my mind, most clearly evident that the operation was performed in three ways: *First*, upon a conducting staff which was passed through the stricture and on into the bladder, upon the groove of which conductor the incision was made. *Secondly*, where a staff was passed down the urethra until it reached the anterior face of the stricture, and the urethra opened upon the point of the staff, after which the stricture, together with the integuments, were all laid open by the knife upon a director which was introduced through the stricture *from its distal* opening. *Thirdly*, a staff was passed down to the stricture, and the urethra opened in the membranous portion posterior

to the obstruction, through which opening a grooved director was passed *from the posterior face* of the obstruction forward through the stricture until it came in contact, or nearly so, with the end of the staff as it rested upon the anterior face of the coarctation; then a knife was pushed along the groove of the director from behind forward, and the entire stricture, together with wall of urethra and integuments, all ripped open: this last method is the one usual with French surgeons. This completes a running epitome of the operation from its early history, to the year 1849, when Mr. Syme, of Edinburgh, called the attention of the profession to "A New Operation for the Cure of Urethral Stricture:" a method which he had devised, and which consisted in passing a special staff through the stricture, then opening the urethra behind the coarctation, upon the small grooved director attached to the staff; in this groove he passed a sharp, narrow-bladed knife forward through stricture, integuments, and all, laying the urethra freely open. It is, however, scarcely necessary to consume time by a long description of the method of the Scotch surgeon, or a detail of his cases, for I presume all are perfectly familiar with it.

It may not be uninteresting, however, to show what were the conclusions which he proposed to draw from his method; and it will serve my purpose better if I quote his own language on this point—they are as follows:

"1st. That there is no stricture truly impermeable, and that, with time and care in every case, an instrument may be passed through it, and serve as a guide for the knife.

"2d. That all strictures which cannot be remedied by simple dilatation, admit of effectual relief only through a free division of the contracted part of the canal.

"3d. That this object can be obtained with certainty and safety only by an external incision in a line corresponding with the raphé of the perineum upon a grooved director passed through the stricture.

"4th. That the only after-treatment required is the introduction of a catheter during forty-eight hours, with the subsequent use of a full-sized bougie at distant intervals.

"5th. That the operation, if properly performed, is free from any risk whatever of hemorrhage, extravasation of urine, or fistulous opening."

I shall examine these conclusions and see how far they may be fully received; whether or not, in the first place, the proceeding is entitled to be considered "a new operation;" how far, if in any particular, it differs from one of the varieties of "la boutonnière;" and, more important than all, whether it is free from danger. That it is not a new operation has been clearly proved by the description of the boutonnière by Desault. In his first division, he shows that the staff was passed through the stricture and the coarctation cut upon the groove of the same; in his third division, that the urethra was opened posterior to the contraction, just as Mr. Syme described it, a director passed from behind forward, and the stricture cut from its posterior to its anterior boundary. The director of Desault was passed from behind, whilst that of Mr. Syme was introduced from the front; this is the non-essential difference in the two operations, one of no consequence, since the stricture, integuments and all, were laid open and left to granulate after both operations.

Mr. Syme has assumed the non-existence of impermeable stricture, and says:

"There is nothing of more consequence in the treatment of stricture than the knowledge of the fact that this alleged impermeability has no real existence except in those cases where the urethra has been divided by violence and allowed to cicatrize with obliteration of the passage beyond the opening at the seat of injury. It is obvious, indeed, that if the urine is permitted to pass, no matter how small a stream, or even by drops there must be room for the introduction of the instrument, if it be sufficiently small and properly guided."

Even this assertion is not new, since Mr. Liston had, in 1835, enunciated the same opinion, as shown by this language—"there are no strictures impassable that I have ever seen, for where any water comes away, you can, by patience and perseverance, get a catheter through sooner or later." Still these assertions have not been proved, since we find in Mr. Syme's own work two instances in which he acknowledges that he was unable to pass his special staff, and consequently he was forced to open the urethra anterior to the stricture and then cut through the same, as in Desault's description of his second division of la boutonnière. Mr. Liston also has been repeatedly foiled in his attempts to introduce a catheter through an ordinary stricture, and was obliged to have recourse to an operation of tapping the bladder both above the pubis and also through the rectum. Yet Mr. Syme asserts that he has never been called upon to perform his operation for impermeable stricture, and simply because he had never met such a case. He makes permeability an indispensable prerequisite to the performance of external division, and does so upon the ground of the "*danger, uncertainty, and difficulty*" which, he asserts, must attend all operations done in the perineum in search of the urethra, without a guide. His own assertions are conclusive evidence that there are impermeable strictures, even if we had no better authority; but upon this point the united experience of almost all surgeons goes to show and to prove that there are cases of stricture oftentimes met with which are impassable to instruments yet not absolutely impermeable to urine.

2. His second conclusion is far from being sustained, since there are too many well-attested cures of resilient stricture—strictures which have proved rebellious to dilatation—which have been thoroughly relieved and permanently cured by the simpler operation of internal urethrotomy; thus sustaining the well-established fact that when a stricture is not impassable to instruments, external division is contraindicated.

3. If we can rely upon the testimony of Mr. Lizars—and his assertions have not been refuted—Mr. Syme's own cases were not with certainty and safety relieved. Mr. Lizars conclusively showed that the statements of Mr. Syme were not to be relied upon, since his cases had not been fairly or even correctly reported by himself, and that a large num-

ber of his operations proved failures, since in many instances the patients were placed in a most terrible condition as the result of his method: profuse hemorrhage occurring in quite a number of them, and also extravasation of urine followed by extensive sloughing, terminating in numerous fistulæ. Mr. Syme himself acknowledges the dangers of the operation when he writes, giving the history of some "eighty or ninety cases," that "alarming symptoms were by no means rare, since every third or fourth patient suffered from rigors, vomiting, delirium, or suppression of urine."[1] Besides these troubles, he met with two fatal cases which he attributed to contact of the urine with the wound.

It is not the purpose of this paper to cast the least reflection upon the distinguished surgeon whose name has been so intimately associated with this operation, nor to condemn the operation of external section. I am writing its history, and desire simply to give the result of my investigations, and show what objections are sustained against it. It is certainly proved, that from the most remote times it has been considered a dangerous and difficult operation, and even in our own day, when surrounded by all the appliances of improved surgery, and encouraged by the success which has attended it, some of the best modern authorities pronounce it an operation not free from danger, but one which requires the most consummate skill for its successful execution.

The venerable, gifted, and distinguished founder of this Association, a man who made, and has left his impress indelibly stamped upon the surgery of the nineteenth century, used this forcible language when writing of the operation:

"The operation is by no means free from danger and requires the most consummate skill for its successful execution. None but a madman or a fool would attempt it unless he had the most profound knowledge of the anatomy of the parts, and a thorough acquaintance with the use of instruments. Of all operations of surgery, this is the least to be coveted."[2]

The operation has not been fully accepted in France, and was rejected by a commission of the French Academy which was appointed to sit in judgment upon it. Civiale, than whom no sounder authority in matters pertaining to genito-urinary surgery has lived, himself never performed it, although he was known frequently to have had resort to the old operation of "la boutonnière."

With all the objections brought to bear upon the various operations of external section, still we are, as I before stated, sometimes called upon to relieve a patient from retention of urine, caused by obstinate and impassable or impermeable stricture: and when that rare contingency does arise, and when milder measures have utterly failed, the urethra remaining absolutely impervious,—letting in no catheter, letting out no urine—then undoubtedly this condition will establish a necessity, a legitimate and imperative and urgent necessity, for our making an artificial vent for the discharge of the contents of the distended bladder.

This brings me to the consideration of the indications which render such an operation necessary.

Indications.—1st. The impossibility of passing a sound into the bladder through the urethral canal, when a firm organic contraction blocks up the urethra and proves rebellious to either dilatation or internal urethrotomy. Here we are imperatively called upon to relieve an over-distended bladder, else we find cystitis being developed, bladder walls becoming hypertrophied, ureters dilated, and kidneys disorganized. The nervous system, overwhelmed by the absorption of urea, cerebral symptoms speedily ensue, and the patient dies comatose. In such cases, the constitutional distress is urgent, and the demand for relief imperative; it then becomes dangerous to temporize with milder methods, and as a rational but *dernier ressort* we must perform an external section. But even in such cases it is not always necessary to do an operation through the perineum, or from without inward; for in some cases it is possible to cut down through the axis of the urethra into and through the stricture, although it may be impassable to the smallest instrument. Of this I speak advisedly, since I have myself done such an operation upon several occasions where I was not willing to subject the patients to the gravity of an external section. It is true the operations were exceedingly difficult, yet they were completed with perfect safety and relief to the patients.[1]

2d. Infiltration of urine resulting in abscess may necessitate an external section. I do not here refer to those sudden cases where from direct injury the urethra has been ruptured and infiltration is the consequence, but I allude to those cases where a tight stricture has existed for a length of time; where a periurethral abscess has resulted from a small opening in the urethra behind the stricture, and the gradual infiltration of urine has lighted up inflammation to a degree sufficient to form a circumscribed deposit of pus. In such cases it is necessary to open the abscess for the purpose of relieving the sufferings of the patient. To do this more effectually, it will be well to carry the incision still deeper, and lay open the urethra at the site of rupture, then carry the knife forward through the stricture to the point of a sound introduced down to the anterior face of the coarctation.

3d. The third indication *might* be placed where certain cases of old tight strictures complicated with urinary fistulæ through which a great part of the urine escapes at every act of micturition.

Many surgeons contend that here is a clear and unmistakable indication for an external section, but, unless in some exceptional cases, I cannot give my unqualified assent to the proposition, since experience has clearly shown that in almost all cases of urethral fistula, so soon as the lumen of the canal is fully restored, the fistula heals; and very soon thereafter, when the normal calibre of the urethra has become established, the innodular tissue which sur-

[1] Lancet, Aug. 21, 1858, p. 191.

[2] S. D. Gross, Diseases, Injuries, and Malformations of Urinary Organs. Second edition, 1855, page 801.

[1] For report of cases, see Richmond and Louisville Medical Journal, Sept. 1873, vol. xvi. page 285.

rounds the fistulous opening becomes absorbed. Such being true, I prefer an internal section as less dangerous and equally efficacious.

4th. The most important indication which may arise, is when the urethra has been ruptured by a violent blow, and when the effects of such injury are rapid and severe. In some of these cases serious results do not take place immediately after the injury; but in others, enormous extravasation of blood may occur immediately upon the reception of the injury —then retention takes place, and the whole cellular tissue becomes infiltrated with urine.

In such cases the operation of external section becomes an absolute necessity, not only for the purpose of evacuating extravasated blood and infiltrated urine, but for the immediate purpose of getting a catheter into the bladder; for it becomes an almost impossible matter to introduce an instrument *per vias naturales* when the urethra has been lacerated. If, however, a free incision is made through the perineum upon the point of a large sound, first passed carefully down the canal to the point of injury, then the sound can be carried into the bladder and the patient placed in comparative safety.

5th. Traumatic stricture—that is, where a stricture has been formed as the result of a direct injury done to the urethra; for example, where fractures of the pelvis have injured the urethra and blocked up with a dense deposit the perineal and ischio-rectal regions. It is very well known how intractable such strictures prove, and how difficult, in many cases, it is to introduce an instrument of even the smallest size into and through such coarctations. In these cases ordinary dilatation proves inefficient, and internal urethrotomy is often of little or no avail. Here, then, we have an evident and clear indication for external section, as the speediest method by which we can gain access to the bladder.

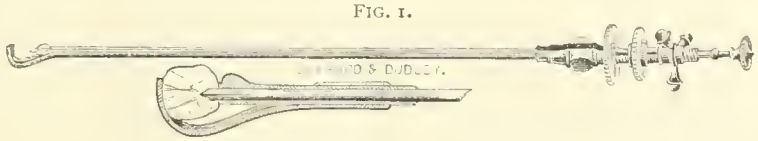
6th. A calculus impacted in the urethra behind a stricture, if large, may be an indication for opening the urethral canal. In some of these cases it is very difficult and oftentimes impossible to thread even the smallest filiform guide through the stricture for the purpose of conducting the staff of an internal urethrotome. In such cases, when an imperative necessity exists for the evacuation of an over-distended bladder, we have only the alternative of aspiration or external section remaining, and of the two, external section seems preferable, and should be done, thus removing the calculus and at the same time opening the stricture by an incision directed from behind forward through the coarctation. Even here an exception may arise should the calculus be small, in which event it is best to open the face of the stricture through the axis of the urethra, so as to expose the calculus, which can then be broken up and removed by the urethral brisepierre of Reliquet (Fig. 1), an ingenious instrument for this purpose, which this distinguished surgeon presented to the French Academy for its consideration in 1871.

7th. The next indication is when extravasation of urine has occurred from sudden rupture of the urethra, and in a short time extensive sloughing has taken place from infiltration of urine into the loose tissue of perineum, penis, scrotum, and groins. Here is an absolute necessity for making free incisions for the purpose of evacuating necrotic tissue together with pus and urine. In these cases it is well, if possible, to open the urethra at the site of stricture, so as to admit of the introduction of a catheter into the bladder. This is, however, not always possible when we come to consider the disorganized condition of the parts. In such cases nothing is left the surgeon save to meet the emergencies as they may arise.

8th. The last indication, if I may term it such, is the one in which Mr. Reginald Harrison advocates the combined operation of internal and external section. He advocates doing an external section immediately following an internal operation, and then keeping the bladder emptied through a large elastic drainage tube carried from the external opening into the bladder, and retained until the internal urethrotomy has healed. His reasons for this are, that patients, in his hands, have usually suffered from urethral fever after the first passage of urine, and that they do not have that trouble until the incision has been bathed by the urine in its passage along the canal. To avoid this complication, he advises doing the external section and draining the bladder. As it would necessarily increase the length of this paper for me to enter into a long detail of his special views upon this subject, I shall now close the indications for the operation by calling the attention of those who desire to know more of his paper to *The British Medical Journal*, of July 18, 1885.

In a given case, where an operation has been decided upon, the question arises as to what form of operation offers the best prospects of success, and which, under the circumstances, can be done with most ease to the surgeon. As for myself, I have found the operation as recommended by Mr. Syme, not only difficult to perform, but unsatisfactory in its results. An established maxim with surgeons has been that "a stricture being permeable to instruments, an external division is contraindicated." Mr. Syme, on the other hand, has reversed this, and made *permeability* an indispensable prerequisite to the performance of an external section. To this I cannot give my unqualified assent, since, in a very large experience, I have found that whenever I have been enabled to pass a guide through the stricture, I have almost always been enabled to perform a successful internal urethrotomy. Mr. Syme has un-

FIG. 1.



hesitatingly admitted the danger of his operation, and mentions hemorrhage as being often alarming. This trouble I have not encountered in my internal sections, and when I come to examine the records of several hundred cases in which I have done this operation I find only two instances in which hemorrhage has proved a troublesome factor, and both of these made good recoveries. In my operation for internal section I always carry my incisions through the upper portion or the roof of the urethra, as by so doing I am convinced the danger of hemorrhage is reduced to the minimum, because there are no arteries to cut, and the small venous bleeding soon ceases. On the other hand, extensive incisions made into the floor of the urethra and through the integument are done in the line of important structures, and vessels of considerable size, which, if wounded, give rise to profuse hemorrhage, and not infrequently serious consequences.

Again, in tight strictures it is extremely difficult to carry the small probe-like director (Fig. 2) from the meatus down the urethra and through the stricture; especially is it difficult to do so if there be false passages in the urethra, or within the stricture itself, and even if there be none already formed it is a very easy matter to make them. Hence it is that I should prefer to select the modification of this operation as proposed and introduced to the profession by my friend Dr. Gouley, of New York.

The main points in his operation consist in the manipulation of a delicate whalebone guide through the stricture, upon which guide he threads his tunnelled sound (Fig. 3) and passes it down to the anterior face of the coarctation; after which he opens the urethra from the outside upon the groove of the sound just in front of the stricture. This being accomplished, he searches for the whalebone guide, which then serves to conduct a very delicate, narrow-bladed knife (Fig. 4) into and through the obstruction; then the whalebone guide is removed and its place supplied by a delicate probe director (Fig. 5), which is pushed on into the bladder, and then the urethra, superficial fascia, and integuments are freely opened. His first incision is made directly in the median line of the perineum from the base of the scrotum to within half an inch of the margin of the anus, and is usually one to one and a half inches in length.

In opening the stricture he directs that the edge of the knife be held downward, and that the coarctation shall be freely divided, taking care to carry the incision into the uncontracted canal about half

Fig. 2.

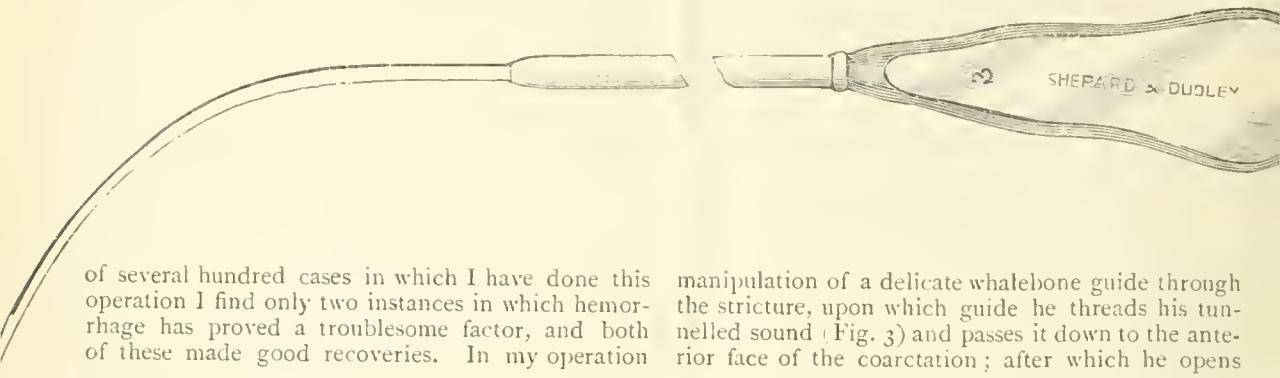


Fig. 3.

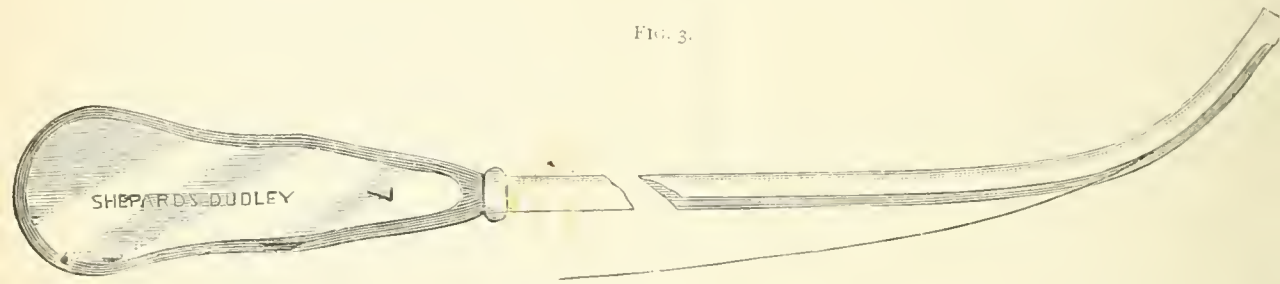
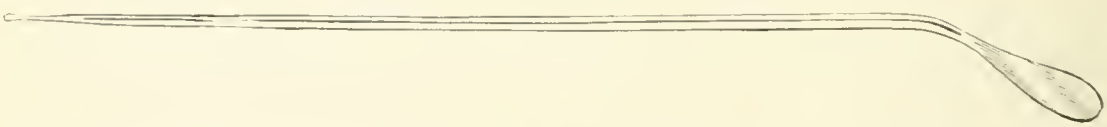


Fig. 4

Fig. 5



an inch posteriorly. The case is then left to nature, and the urethra and the wound to the unobstructed passage of urine. The objections to Dr. Gouley's method are, the large size of the external incision, and the length of time required for the wound to granulate and heal. His incision through the stricture being made in the floor of the urethra endangers bloodvessels of importance, which become difficult of ligation if cut. The wound left to granulate is liable to the formation of numerous fistules, and a long time elapses before the patient is well enough to resume his ordinary vocations.

In this connection, I may refer to the method of Mr. Wheelhouse, which is known as "the Leed's operation." It possesses some advantages over the other forms which have been mentioned, chiefly so, from the ease with which it is performed; but it has still the disadvantage of leaving an open wound in the perineum to heal by granulation, and consequently it is liable to the after-consequences of perineal fistula. Mr. Wheelhouse certainly deserves great credit for the very ingenious and practical manner in which he has planned his operation, and his procedure has the advantage of greatly increased precision over any other form with which I am acquainted. By it an operation which was hitherto one of the most difficult in surgery, has been rendered comparatively easy, and the published reports go to show that the results have been vastly more favorable than from any other method yet described.

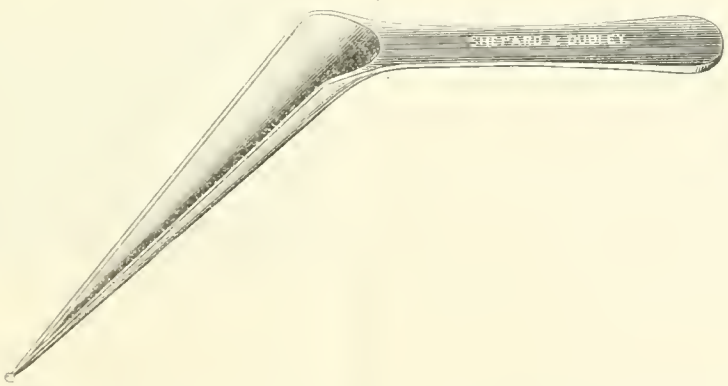
This operation is done upon a special staff designed for the purpose, which instrument is fully grooved through the greater part, but not through the whole of its extent, the last half inch of the groove being stopped and terminating in a rounded button-like end (Fig. 6). The urethra is opened *in the groove of the staff, not upon the point;* in this way, certainly securing at least a quarter of an inch of healthy tube in advance of the stricture; the opening in the urethra being held apart by two pairs of fixation forceps, applied one on either side, and the upper angle held up by the button extremity of the staff hooked in it. This opens the urethra and fully exposes the face of the stricture, in which the opening is searched for with a probe-pointed director, which, when it enters the bladder, is turned down so that the groove faces toward the perineum. Then the knife is directed along the groove and the stricture is carefully and deliberately opened on its under surface, and the passage thus cleared. This being accomplished, the probe-gorget of Mr. Teale (Fig. 7) is passed into the bladder with its concavity looking toward the pubis, so as to receive the point of a catheter, which is now introduced along the urethra until it reaches the gorget, by which it is conducted into the bladder; the gorget is now removed and the catheter tied in to remain for three or four days. After the expiration of that length of time the catheter is removed, only to be reintroduced each day or every second day, so as to keep the urethra in a state of patency until the wound in the perineum has thoroughly healed. The operation is ingenious, and, as a form of "la boutonnière," it deserves to be recommended; still it has, to my mind, the disadvantage which attends all of these operations, viz., leaving an extensive wound in the perineum to heal by granulation, exposing the patient to the dangers of pyæmia, and the liability of urinary fistulæ as a sequence. A very interesting description of this operation is to be found in the *Brit. Med. Journ.*, June 24, 1876, from the pen of Mr. Wheelhouse himself.

The idea has prevailed that, when the external incision is not large and free, urinary infiltration will necessarily take place; but this is an erroneous conception like that which has existed in reference to cutting for stone. The urine, obeying the natural law of gravity, does not infiltrate and burrow under tissues when it has an open channel through which it can escape. So it is, whenever a stricture has been fully divided, the urine necessarily follows the course of the urethra.

(*To be concluded.*)

FIG. 6.

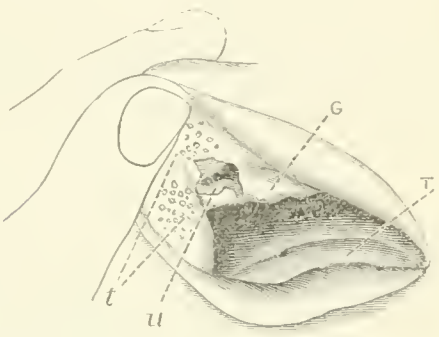
FIG. 7.



AN EXAMPLE OF DIRECT INFECTION OF TISSUE BY TUBERCLE.

BY J. SOLIS COHEN, M.D.,
OF PHILADELPHIA.

A CASE of tuberculosis pulmonum et laryngis now under my care has so well exemplified the direct transport of the infectious principle of tubercle from one surface to another that no excuse is necessary for placing it on record. A man forty-two years of age, who has led an exposed life on the Atlantic Coast of the Eastern States, but who claims that his family history has been good, is suffering with typical chronic tuberculosis of the lungs, larynx, and other organs. The larynx shows great infiltration of



Upper lip of tuberculous subject, showing direct infection. (From a drawing by Dr. Arthur W. Watson.)
T. Tongue.
g. Edentulous gum.
u. Tuberculous ulcer in gum and transition to lower portion of upper lip.
t. Tubercles further out in the lip, where it has lain in contact with the ulcer.

the epiglottis, greater infiltration of the periarytenoid and perisupra-arytenoid structures, with thickening in the anterior and middle portions of the ventricular bands, of the vocal bands, and most likely of subglottic tissues also which cannot be brought under illumination. Aphonia, long present, is due to infiltrating tumefaction preventing approximation of the vocal bands. No ulcerated points can be detected laryngoscopically. On the margin of the edentulous gum of the upper jaw of this patient, and extending across the sulcus between gum and upper lip, is a characteristic tuberculous ulceration, and on those portions of the lip which lie in contact therewith, are numerous points of recent nodular tubercular infiltration, evidently from direct infection. A somewhat similar example, in which the perisupra-arytenoid tissue became infected from a tuberculous ulcer on the epiglottis, is pictured in Fig. 115, p. 503, of the second edition of my treatise on *Diseases of the Throat and Nasal Passages*, New York, 1879.

ANASTOMOSIS OF RETINAL VEINS UPON THE OPTIC DISK.

BY B. ALEX. RANDALL, A.M., M.D.,
OPHTHALMIC AND AURAL SURGEON TO THE EPISCOPAL AND THE CHILDREN'S HOSPITALS, PHILADELPHIA.

THE comparative rarity of this form of anomalous arrangement leads me to place upon record the following case: W. H. S., aged thirty-five, employed in a hosiery mill, visited the eye clinic of the Episcopal Hospital in April because of pain in the eyes and head and dimness of vision, rapidly coming on when using the eyes in near work. The eyes were somewhat watery, the conjunctiva injected, and the anterior perforating veins large and tortuous. The vision was but $\frac{20}{XL}$ in each eye, less distinct in the left.

The ophthalmoscopic examination shows in the right eye a disk apparently large, nearly round, with a large shelving excavation extending to the outer margin, and a disturbed crescent of choroid down and out, with a large aberrant artery (lower temporal) emerging from beneath it. The upper veins enter the substance of the disk near the margin and are irregular in their arrangement; the upper artery emerges from the porus. A prominent tongue of tissue, arising from the centre of the disk and extending downward to the margin, almost hiding the ending of the lower vein to its temporal, and the origin of the lower artery to its nasal side, constitutes the most marked anomaly. It seems to blend with the thickened sheath of the vein at the lower disk margin. The eye shows low hypermetropic astigmatism, with considerable disturbance of the choroid and some tendency to accommodative spasm.

In the left eye the disk is of similar size and form, with a small and deep central excavation, into the outer portion of which most of the veins enter.

There is considerable choroidal disturbance at the outer margin, with pigment-heaping and absorption, the lower portion of the crescent seeming to be in a plane deeper-lying than the general choroidal level.[1] The lower artery arises near the lower nasal margin of the disk, the upper from the upper part of the porus. A large vein (upper nasal) enters the

[1] The cut is not strictly accurate as a portrait, but depicts faithfully the relations of the veins constituting the anomaly.

substance of the disk in the middle of the upper nasal quadrant. Connecting this with the adjacent vein which passes into the porus is a straight communicating vein about one-half as large as either of the vessels which it unites, and nearly at right angles to the course of each. Its relation to each vessel is unmistakable, and there is no neighboring vessel with which it might be confused. The general condition of the choroid is almost as bad as in the periphery of the other eye. The refraction is as in the other, less masked by spasm of the accommodation.

It may be noted that there is marked distortion of the nose to the left, but no other notable asymmetry or anomaly of the head.

1806 Chestnut Street.

MEDICAL PROGRESS.

The Absorption of Drugs from Lanolin Ointments.—In the *Vratch*, No 23, 1886, p. 421, Dr. P. V. Burjinsky describes the results of his experiments, carried out in Professor V. A. Manassein's clinic. The preparations of lanolin, used by the author, were quite pure (obtained either directly from Jaffé and Darmstäter, or from Professor A. W. Poehl's laboratory in St. Petersburg). The ointments were rubbed with the palm of the hand, under strong pressure, into the internal surface of the arm and forearm, the procedure lasting from fifteen to twenty minutes. Only fixed (non-volatile) and indifferent (non-caustic) substances of known chemical composition (such as ferrocyanide of potassium, hydrochlorate of quinine, sodium salicylate, and salicylic acid) were used. The question of cutaneous absorption was decided exclusively on the ground of the drugs passing in the urine. In seven of twelve experiments (in four with ferrocyanide of potassium, two with quinine, and one with sodium salicylate) the results were entirely negative; that is, not a trace of the drugs employed was discovered in the urine, the analysis being repeated hourly from six to eighteen times. In the remaining five (one with sodium salicylate and four with salicylic acid), there was obtained the well-known violet reaction with perchloride of iron; it appeared from one to four hours after the inunction. But the same reaction was obtained, also, two hours after the inunction of the same amount of an ointment made of salicylic acid and hog's lard. Having considered the results above given, Dr. Bürjinsky lays down the following propositions: 1. So far as penetration of drugs through the skin is concerned, lanolin seems to have no advantage whatever, comparatively, with other fats used as a basis for ointments. 2. Lanolin is a good constituent for ointments, since (*a*) it is a neutral fat not liable to become rancid; (*b*) it is easily miscible with glycerine fats and water; and (*c*) it gives delicate, fine ointments. In conlusion, the author draws attention that it is necessary to ascertain whether the process of preparation of cholesterin-fat gives security against any possibility of infection with anthrax.—*London Medical Record*, July 15, 1886.

Replantatio Dentis.—Grevers records the case of a fourteen-year old boy who fell from a height upon his face, whereby a first upper incisor tooth was completely removed from its alveolus. Then the alveolus was cleaned, the tooth disinfected, replaced with considerable pressure and resultant pain, and maintained in position by elastic slings attached to the neighboring teeth. In six weeks the tooth had regained its firm attachment and it was in no wise distinguishable from its fellows.—*Centralbl. f. d. med. Wiss.*, July 24, 1886.

Bichloride of Mercury and Tincture of Belladonna in Membranous Croup.—Dr. J. H. Jones writes as follows to the *New York Medical Journal* of August 21, 1886:

I have for some years been in the habit of treating this disease with a combination of corrosive sublimate and belladonna. These drugs are recommended for this complaint in almost every work on therapeutics, but I am not aware that they have ever been given conjointly. I have found that small doses of the bichloride (one-fiftieth of a grain), administered in conjunction with tincture of belladonna (two to five minims), every half hour for a child two years old, is a very successful method of dealing with this dangerous disease of childhood. The secret of its success is in its persistent administration, even when the symptoms are apparently most unfavorable. I have several times witnessed a happy termination to the disease when other practitioners with whom I was associated entertained scarcely a hope of recovery. It is advisable to commence the treatment by administering an emetic, so as to dislodge the already formed membrane. Probably much of the benefit derived from this mixed treatment is due to belladonna, and it is astonishing what large doses of this drug children can tolerate. During the progress of the disease the strength must be maintained by a liberally nutritious diet and stimulants, for I must say that when recovery takes place the patient is left very anæmic and weak. This is not very apparent while the medicine is being given, as every evidence of it is partially masked by the physiological effects of the belladonna.

The Diuretic Action of Watermelon.—In the course of a prolonged study of remedies used in Russia as diuretics, Popoff (*Vratch*, No. 4, 1886) finds that watermelon has been commended as an extremely cheap but effective substitute for grapes in the treatment of chronic congestion of the liver, chronic intestinal catarrh, etc. It is extensively used by the peasantry in Southern Russia (especially near the river Don, and in the Caucasian districts) in the form of the freshly expressed juice, as a diuretic draught in cases of dropsy, urogenital affections (especially gonorrhœa), etc. The author experimented with the inspissated fresh juice or syrup of the fruit, and with commercial melon-honey (*arbooznyi miod*). The diuretic action proved most striking; when animals received from 50 to 100 grammes of the syrup (with food) in twenty-four hours, the daily quantity of urine was three or four times greater than under ordinary conditions; again, on intravenous injection of the syrup "the urine for several minutes flowed in a stream from a canula tied into the ureter." On the subcutaneous injection of 0.4 to 0.7 gramme into frogs the syrup rapidly slows the cardiac action up to complete arrest in diastole, and produces prostration with loss of voluntary movements, while reflex action

and the excitability of the motor nerves and muscles remain intact. When very large doses are used, in the latest stages there is observed, also, a failure of reflexes and of nervo-muscular excitability, but the phenomenon is then undoubtedly nothing but an ordinary symptom of præmortal agony. In dogs the internal administration of 500 grammes at a time produces no effect except powerful diuresis. Intravenous injection of one to two grammes of the syrup causes an immediate increase in the secretion of the urine, the latter assuming a dark color and containing sugar. This increase lasts for ten to sixty minutes, and is accompanied only by a slight fleeting decrease in the blood-pressure. On the injection of 0.25 to 0.5 gramme for each kilogramme, a considerable fall of the pressure and a great acceleration of the pulse rapidly follow. An intravenous injection of 3 grammes per kilogramme produces a further fall of pressure and a fleeting increase, with a subsequent sudden enormous decrease in the frequency of the pulse, the animal dying from cardiac paralysis. Experiments show that the quickening of the cardiac action is dependent upon the syrup acting on the peripheral ends of the vagi. In all cases intravenous introduction of the syrup rapidly produced a strong sedative effect, "the animal remaining strikingly quiet, and giving no response to tactile or even pathic irritation." Another group of experiments showed that the diuretic action of melon-syrup was dependent mainly upon its direct influence on the renal tissue.—*London Medical Record*, June 15, 1886.

The Prevention of Insanity.—In a paper recently read before the Connecticut Medical Society, Dr. Gustavus Eliot presents the following conclusions, which, although they have no claim to the merit of novelty, are none the less important:

In order to prevent the occurrence of insanity it is necessary

I. To avoid the transmission of a hereditary tendency thereto, by discouraging marriage between persons of like tendencies in this direction.

II. In persons with a hereditary or acquired tendency in this direction, to counteract the tendency as far as possible.

1. By insuring regularly an adequate amount of sleep, and a sufficient quantity and variety of nutritious food.

2. By securing recreation and relaxation.

3. By maintaining the action of the secretory and excretory organs.

4. By avoiding entirely the use of alcohol and other cerebral stimulants.

5. By cultivating habits of self-control.

6. By encouraging objectivity rather than subjectivity of thought, breadth, and not narrowness of mental activity.

7. By avoiding anxiety and excessive mental exertion.

8. By taking disappointments philosophically, forgetting them quickly, and not brooding over the unpleasant occurrences of the past, but anticipating with cheerfulness the events of the future.

Further Investigations on the Bacillus of Typhoid Fever.—Neuhauss has continued his study of the contents of the roseola spots of typhoid and, as before, finds in the blood therefrom obtained a characteristic bacillus. Only the blood from these spots contains the bacilli, a fact which inclines him to the opinion that the cutaneous lesions are due to "bacterial emboli." In nine out of fifteen cases he has succeeded in making cultures of the typhus bacillus from blood thus obtained.

Neuhauss claims also to have found the bacilli in the four months' fœtus of a woman who aborted soon after a relapse of typhoid fever. Inasmuch, however, as a conclusive proof of the passage of microörganisms from the maternal to the fœtal circulation is not yet at hand, the statement demands further investigation.—*Centralbl. f. klin. Med.*, July 31, 1886.

Extirpation of the Spleen.—Prof. Ceci, of Genoa, successfully removed the spleen in a girl, aged seventeen (*Gazz. degli Ospitali*, May 23). The patient, who was imperfectly developed and ill-nourished, had had an abdominal tumor from birth. A large floating spleen was diagnosticated. It interfered with the patient's walking, and at times gave rise to severe attacks of pain extending from the left hypochondrium to the præcordial region, radiating into the left arm, and followed by dyspnœa and unconsciousness. The removal of the organ was therefore decided upon. The operation was performed on March 20. The strictest antiseptic precautions were used, and the surrounding atmosphere was at a temperature of 30° C. (86° F.). Anæsthesia was commenced with bichloride of methylene; but upon opening the abdomen grave symptoms of suffocation appeared, which necessitated the suspension of the operation for nearly thirty minutes. Chloroform was then employed. The incision was twenty-three centimetres (nine inches) long; and extended through the linea alba, an equal distance above and below the umbilicus. The pedicle was secured with a triple ligature of catgut and carbolized silk, and was left at the bottom of the wound. The peritoneum was sutured separately. The abdominal walls were fastened by three metallic points, after Billroth's method. The extirpated organ with its contained blood weighed about 2400 grammes (a little short of five pounds). The whole operation, including the above-mentioned interruption, occupied an hour and a quarter. Furious delirium came on the following morning with the nervous symptoms, resembling *angina pectoris*, from which the patient had been in the habit of suffering. For two days, the respirations were from 70 to 80 a minute, and the pulse could not be counted. Under treatment by oxygen and nutrient clysters this alarming state passed off. On the fourth day, fever arose. On the eighth day, the first dressing was removed and the wound was found actively suppurating. The suppuration, according to the report, yielded to vigorous antiseptic treatment. In the following days, however, occurred two erysipelatous infections, coincidently with the reception of two erysipelatous patients in neighboring surgical wards. At the time of the report (April 22, 1886) the patient was in excellent condition. The abdominal incision had nearly healed, showing only a superficial wound remaining. This is stated to be the thirty-ninth time the operation has been performed. The mortality has been 78 per cent.—*London Medical Record*, July 15, 1886.

THE MEDICAL NEWS.

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SATURDAY, SEPTEMBER 11, 1886.

EXCISION OF VARICOSE VEINS.

IN speaking of the method of Antyllus for the treatment of aneurism (THE MEDICAL NEWS for May 1 and May 29, 1886), we have already expressed the opinion that modern improvements in the mode of performing surgical operations and in their after-treatment make it possible to form more favorable opinions of certain operations than were once justifiable. This is the case with the method of excision of varicose veins. There was a time when it could not be questioned that any method which attacked them through an open wound made the patient liable to serious accidents, and even to death. This fact accounts for the preference evinced by some of the most experienced and skilful surgeons for the employment of caustics, and the efforts made to devise a satisfactory method of subcutaneous ligature. But, at the present time, when the most intolerant parts are attacked with impunity every day, it is not an act of temerity to cut down upon, and remove portions of, veins which are enlarged and tortuous, so as to relieve the often distressing symptoms to which they give rise. Indeed, something more than has been effected in this direction might have been hoped for from the elaborate papers of DR. SAMUEL W. GROSS on wounds of the veins, published in the *American Journal of the Medical Sciences* in 1867, in which he made it clear that the veins are not so intolerant of operative interference as has been supposed.

This fact is better understood now than it was then, and so it is not surprising to find a revival of interest in the method of treating varicose veins by excision, which is as old as the time of Celsus. Its latest advocate is DR. KENDAL FRANKS, who publishes an interesting paper on this subject in the *Dublin Journal of Medical Science* for May, 1886. In this paper Dr. Franks, after discussing the pathogenesis of varicose veins—speaking of those of the legs alone—describes his method of excision, and the cases to which he believes it to be suited. In slight cases, in old and debilitated subjects, and in cases in which the condition is due to irremediable extrinsic causes, he thinks palliative measures are to be preferred. But where the cause is intrinsic, or is extrinsic and remediable, and where the patient is a young, or healthy adult, he would operate. In fact, he has operated in more than twenty cases, and in none has he seen phlebitis, erysipelas, or pyæmia, formerly the great terrors of the operation. Of course, he uses aseptic precautions. He washes the leg with corrosive sublimate solution, or oil of eucalyptus; places a ligature around the limb above the site of the proposed incisions, so as to distend the veins; makes a clean cut over the vein; divides the subcutaneous tissue on a director; passes a strong catgut ligature around the vein at its lower part; seizes it immediately above the ligature in a pair of forceps, cuts through it below them, and draws it out, ligating and dividing any radicles met with. Finally, he places a ligature around the highest point of the strip which has been dissected out, and cuts it off just below this ligature. He then irrigates the wound with corrosive sublimate solution, dusts it with powdered iodoform, and closes it up. Formerly he used to insert a drainage tube; but he no longer does so. If necessary, he removes several sections of the vein or veins in this way, and he also operates at once on both legs, if they both need it. After the operation he bandages the leg, or legs, from the toes to above the knees. As a rule, he leaves the dressings undisturbed for eight or ten days, and generally finds the wounds healed by first intention when he examines them. In a few cases he has had some suppuration, but it did no more harm than to delay the healing for a little while. He does not state that he puts his patients to bed after the operation, but it is to be assumed that this is done.

The confidence of Dr. Franks in this method is not surprising, in view of the good results he has obtained by it, and especially in view of the fact that he believes he secures a radical and permanent cure. His own conclusion is that antiseptic excision, in suitable cases, is a means of treating varicose veins which offers the hope of far better and more permanent results than any other method hitherto devised, and that with ordinary care it is far safer. This conclusion certainly seems warranted by the argument of Franks, and would justify imitation of his example.

It is interesting to note that this experience furnishes another illustration of the fact that the practice of modern surgery returns, from time to time, to the simple and direct methods of the ancients; and with its gains in the direction of more accurate *technique* and more perfect conditions of asepsis, secures better results by once abandoned methods than have been obtained by the methods to which men were driven by the dangers of the pre-antiseptic period. In operations upon the skull, in operations on the abdomen, in operations upon the bladder, the same thing is being seen; and surgeons are continually reverting to the plainer and more direct methods of the earliest surgeons. Simplicity and directness seem to be coming into fashion. Even the very features of the antiseptic method of wound treatment, which is not yet old, are becoming simplified; so that it may be hoped that before long the principles of surgery will have attained a degree of perfection which was not possible in the earlier, ruder days, nor yet in the days of extreme reaction, in which too much stress was laid upon unimportant details.

THOMSEN'S DISEASE.

In 1876, Thomsen, a Schleswig physician, described a remarkable affection of the muscles to which he was himself subject, and which had existed in many members of his family through, at least, four generations. The disease has, since then, become well recognized, and is usually known by the name of the original describer, or by the term myotonia congenita, suggested by Strümpell. In a recently issued monograph, *Die Thomsen'sche Krankheit*, Leipzig, 1886, Erb has analyzed all the recorded cases, and presented an elaborate study of the affection, based upon three original observations.

The disease involves the voluntary muscles, and, as a rule, appears very early in life; indeed, in a majority of cases, it is probably congenital, and often affects several members of the same family. It is characterized by a remarkable stiffness and tension of the muscles on attempting to perform any voluntary movement. This is particularly noticeable after the subject has been at rest for some time. Occasionally the entire body becomes stiff, and the patient may be unable, for a few moments, to move a limb. Usually the tension and stiffness pass off with continued motion, and the action of the muscles becomes as free as in a normal individual. Rapidity of muscular action is impossible, as with each energetic willed movement the muscles involved pass into a tonic, long-continued, painless contraction which is only gradually relieved. In all other respects the subject of this disease is healthy, and presents neither psychical nor somatic anomalies. The muscular system is unusually well developed, but the strength is scarcely proportionate to the size and appearance of the muscles.

Hereditary influences play an important part in the etiology, and the disease resembles several other myopathic affections in appearing early in life and attacking several members of the same family. It is essentially a chronic malady, and may persist, with variations in intensity, during the entire life.

Of the recorded cases Erb has selected twenty as typical instances, and has excluded twelve or fifteen as doubtful. A careful study of his three cases led to the discovery of certain symptoms of diagnostic importance, hitherto overlooked, and also to certain facts which throw light on the pathology of the disease. The mechanical excitability of the motor nerves is not heightened, and the faradic and galvanic reactions are essentially normal; but the muscles, on the other hand, show a greatly increased excitability and qualitative changes with galvanism. AnS acts as strongly as KaS, often, indeed, more strongly, and the contractions are slow, tonic, and long continued. The strong faradic current induces in many muscles undulatory contractions. Great stress is laid upon this marked difference in the nerve and muscle reactions as the important diagnostic sign of the disease.

In the portions of the muscle excised during life remarkable changes were found, consisting in enormous hypertrophy of all the fibres, increase in the nuclei, indistinctness and vacuolation of the substance, with thickening of the interstitial connective tissue. An opportunity of examining the nervous system has not yet arisen, but Erb holds that the evidence points strongly to a pure myopathic affection, and he would directly connect the disturbance in function with the histological changes discovered in the muscles, the precise nature and mode of origin of which still remain in doubt.

The affections with which Thomsen's disease is most likely to be confounded, are tetany and pseudo-hypertrophic muscular paralysis. The tonic spasm in the muscles occurring at intervals resembles tetany, but the contractions are never so strong, are not painful, and do not occur spontaneously, but always on attempting a voluntary act. The hereditary and chronic character of Thomsen's disease also afford valuable diagnostic features. The nerve and muscle reactions are entirely different, as the excitability of the nerves in tetany is heightened, while that of the muscles is normal—the reverse of what occurs in Thomsen's disease. In several instances the affection has been confused with pseudo-hypertrophic paralysis, with which, however, it has only a superficial resemblance in the hereditary origin, the early onset, and the increase in volume of the muscles.

The disease is probably incurable and does not appear to lessen the duration of life. Erb recommends massage and general faradization as suitable agents, the former for direct action on the muscles, and the latter as a tonic to the trophic centres.

A PROPOSED MODIFICATION OF PORRO'S OPERATION.

Dr. John Bartlett, of Chicago, proposes to modify the operation of Porro by first opening the uterus with a thermo-cautery instead of the knife, and, after the removal of the fœtus and secundines, to invert the organ, clamp the cervix in the vagina, and then amputate as in the Porro method, leaving the stump in the vagina. The proposition is ably presented in a paper which was read before the Chicago Gynecological Society on June 26th. This plan was proposed in Europe in the early days of the Porro method, to avoid the dragging of the pedicle upon the abdomen, and the risk of dropping in the stump for the same purpose, as devised by Gustav Veit, of Bonn; but no one in the six years that have passed has thought sufficiently well of it to give it a trial. It is, therefore, not new, and at the present time the Porro method is being in a measure superseded by a less dangerous one in an improvement of the old Cæsarean operation devised by Dr. Sänger, of Leipzig. There is no hope from theoretical reasoning, that the Bartlett plan would ever be able to save 80 per cent. of the women, and nearly 100 per cent. of the children, as has been done in Continental Europe, under the Sänger method, and it is, therefore, only to be regarded for its ingenuity.

The Porro operation of to-day has not the status that it had three years ago, or even one year ago, for the wonderful results under the old Cæsarean section with the Sänger improvement have excited the attention of some of the most famous of the followers of Porro, who are now making trial of it because of its lesser fatality. When the operators in two maternity hospitals have saved 16 out of 17 women, and all of the children, by it, there must be more in it than an accidental train of good fortune. The Porro method, even under Chiara, of Milan, was made to appear more dangerous by comparison, and Chiara himself reports as an entire success a trial of the new plan made just three days after Dr. Bartlett read his paper.

When we consider that in the year from July, 1885, to July, 1886, there were 20 Sänger operations in Europe, with a loss of only 2 women and possibly child, we can comprehend the futility just now of recommending any other scheme of delivery in cases of pelvic obstruction. Mr. Lawson Tait, having lost three women by the Cæsarean section, and saved one by the Porro method, may prefer the latter, and rate the mortality of the former at over 99 per cent., but he cannot establish his estimate in view of these incontrovertible facts. Until a wiser man devises a safer method, we shall recommend that of Sänger as simplified by Leopold, for it has saved 90 per cent. of the European cases in the past year. In 1880, there were 27 Porro operations (true) in Europe, resulting in the saving of 10 women and 21 children. In 1883, there were 12 recoveries and 10 deaths, which is the best year in Dr. Godson's table. In no year were 18 women saved from any number of operations. The 31 Sänger Cæsarean operations of Europe have been the work of 13 operators in Germany, Austria, France, and Italy.

REVIEWS.

Monthly Nursing. By A. Worcester, A.M., M.D., Fellow of the Massachusetts Medical Society. 8vo. pp. 250. Boston: D. W. Mason, 1886.

The author of this little volume has been in the habit of lecturing to nurses in the Boston Lying-in Hospital, and more recently in the Waltham Training School, and this may be said to be his text-book designed especially for their instruction. It aims rather high for the class of women who usually offer themselves to nurse parturient cases, but not too much so for those who ought to be trained for this important branch of nursing. The better educated and more refined women who enter training schools generally prefer to nurse ovariotomies and other surgical cases, neurasthenias and other nerve maladies, etc. Dr. Worcester designs by his book to teach what is to be done in cases of emergency, and to give an obstetrical training, so that the nurse may be prepared to act in cases where the physician is not on hand at the delivery. Although he adds a glossary to the end of the book, we believe it would have been better either to have avoided technical terms, or to have explained them as in *Blundell's Midwifery*, at the bottom of each page where they occur. The general aim of the book is to teach nursing only, and to make the nurse observant, careful, and competent in her position. There is no reason why women with a fair degree of education should not be trained to nurse in cases of labor, and be well compensated because of their superior knowledge. There are many female medical students and graduates who might do better in this capacity than in an overcrowded profession, but for the fact that so few of them have the requisite physical health and strength, but there are others in various trades and occupations in which they make a bare living, who have these requisites and might better their resources in nursing. The volume closes with a section upon diet. We cordially recommend the work, and believe that it will be useful not only in the hands of nurses, but in those of many physicians who need to know how to direct them.

SOCIETY PROCEEDINGS.

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Tenth Annual Session, held at Greenwich, Conn., August 25, 26, and 27, 1886.

THURSDAY, AUGUST 26.—SECOND DAY.

MORNING SESSION.

DR. G. H. TILDEN, of Boston, read a paper on

TROPHONEUROSIS OF THE SKIN CAUSED BY INJURY TO THE MEDIAN NERVE.

E. F., fifty-five years of age, was wounded in the wrist by a circular saw, in November, four months before coming under observation. The wound was parallel with the long axis of the limb. It was sewed up and healed in about ten days. Three or four days after the infliction of the injury, there were loss of the tactile sense and a feeling of numbness in the last two phalanges of the fore- and middle-fingers. This has continued and steadily increased. There was at first a slight feeling of numbness in the thumb, but this gradually diminished until it disappeared. Three weeks after the accident bullæ appeared upon the terminal phalanx of the middle finger. Similar lesions have developed from time to time upon the last two phalanges of the fore- and middle-fingers. The bullæ appear every two or three weeks and are unaccompanied by any subjective sensation. These leave superficial excoriations which heal in the course of ten days. The skin over the affected phalanges is of a white color and of a glossy texture. The growth of the nails is unaffected. There was entire loss of sensation in the skin covering the affected phalanges. The right hand is capable of exerting only one-half the power of the left. The first and second interossei muscles exhibited the reactions of degeneration. Six weeks' treatment with the faradic current caused decided improvement in all the symptoms. During this period only one bulla formed. He then stopped treatment and returned to work. Three weeks later all the former symptoms suddenly returned. It was proposed to the patient that an incision be made over the seat of injury with the view of determining the exact condition and if possible remedying it. The patient has not since been seen.

Whether the trophic nerves exist as individual and special nerve fibres or whether the motor and sensory nerve fibres are the ones by which the nutrition of the tissues is governed, is unknown. The latter view was considered by the author as the most rational. Injury or disease of the motor or sensory nerves as well as disease of the ganglia and central nervous system, may disturb not only motor power and sensation, but also the nutrition of the tissues. That it does so is by no means the case, but why trophic changes should take place in one instance and not in another is not clear. A number of cases have been reported showing that such changes are more apt to follow partial injury of a nerve than complete section. The changes commonly seen in these cases are the so-called glossy skin and vesicular and bullous eruptions followed by superficial excoriations. The treatment of these cases consists in the use of electricity and the application of blisters over the seat of injury. A last resource is to cut down upon the affected nerve and endeavor to relieve any constriction or pressure which may be found. If no such condition is detected, resection of a portion of the nerve might be advisable, since complete section is not apt to be followed by spontaneous trophic changes, and since it has been found by some observers that resection of a portion of the affected nerve is sometimes followed by arrest of the trophic changes.

DR. JAMES C. WHITE, of Boston, then presented a paper on

NATIVE PLANTS INJURIOUS TO THE SKIN.

He pointed out that the number of plants growing native and cultivated in the United States, which are capable of exciting some degree of dermatitis by contact, is much larger than is generally supposed; and that cases of such inflammation of the skin not infrequently occur without being understood, because the patient has not been exposed to the two or three plants which alone are considered to be poisonous. He enumerated over fifty species which have irritating properties when brought in contact with the skin. With reference to rhus poisoning he said that the rhus toxicodendron is comparatively innocuous, while the rhus venenata is the most poisonous species of this plant. The treatment is the ordinary treatment of dermatitis. There is no specific for this form of dermatitis.

DR. H. G. PIFFARD, of New York, read

SOME NOTES ON DRUGS,

in which he referred briefly to several recently introduced preparations.

DR. F. B. GREENOUGH, of Boston, presented

A FEW ADDITIONAL NOTES ON PSORIASIS.

The paper was a continuation of the tabulation of cases of psoriasis seen during the past year. The facts previously noted with reference to age, sex, the time of the first appearance of the disease, and the number of cases, had been confirmed. In addition to these statistics, the author, owing to the fact that a statement he had made at the last meeting in reference to the general health of the patients, had been doubted, had attempted to obtain further testimony upon this point. He found that, as a rule, patients with psoriasis were above par in general health and strength. He had records of twenty-nine cases of psoriasis out of 1220 cases of skin diseases, giving a ratio of cases of psoriasis of two and one-third per cent. The youngest case was nine years of age, while the eldest was fifty-seven years. The reader thought that the interesting deductions to be drawn from his cases were the facts, that while nine cases showed symptoms of psoriasis under ten years of age, one was first attacked at the age of fifty-seven years; that out of twelve cases in which evidence could be obtained, four gave a decided history of the existence of disease in some member of the family, and that these cases showed such a high standard of general health. He considered this latter fact as a strong argument against the possible connection between psoriasis and syphilis. He had never seen psoriasis of the hands unassociated with evidences of the disease in other parts of the body.

DR. A. R. ROBINSON, of New York, described a case of

CHONDROMA OF THE UPPER LIP.

The tumor occupied the right side of the upper lip of

a man thirty-six years of age. It had been growing for two years and was one inch in length by three-fourths of an inch in diameter. The mucous and cutaneous structures were freely movable over the tumor, which was sharply limited, somewhat encapsuled, and nourished by a small artery entering at the base. Microscopical examination showed the tumor to consist of embryonic, gland and connective tissue. The gland tissue was formed of hypertrophied mucous glands and new gland tissue. The amount of new gland tissue could not be correctly estimated, because much that resembled gland tissue, represented an early stage in the process of cartilage tissue formation. The connective tissue was myxomatous, fibrous, and cartilaginous. The myxomatous was present principally at the periphery and did not represent œdematous fibrous tissue. Fibrous connective tissue was present chiefly between the islands of cartilages, the bundles were small and the fibrils very fine and often rather indistinct in outline. There were several islands of cartilage the largest being in the central part of the tumor. All varieties of normal cartilage were present, viz., hyaline, fibrous, and reticular, and also the variety met with in the heads of cephalopods, namely cartilage with ramifying or branched cells, *chondromes à cellules ramifiés*. The cells showed great diversity of form and size. The body of the branched cells presented a great variety of form. Some were surrounded with a capsule, but in the majority of cases this was absent, or only faintly indicated. In some places the islands of cartilage had joined each other, but usually they were separated by the other constituent tissues. The affection is considered to be very rare. It has been described by Paget under the name of labial glandular tumors.

DR. P. A. MORROW, of New York, reported a case of

KERATOSIS FOLLICULARIS, ASSOCIATED WITH FISSURING OF THE TONGUE AND LEUKOPLAKIA BUCCALIS.

The patient, C. O., a sailor, aged twenty-one years, came under observation in December, 1885. Five years previously, soon after beginning his seafaring life, he noticed a number of blackish points upon the back of the hands, some of which he squeezed out. Soon afterward these appeared upon other parts of the body. They improved when he was on land, but were aggravated when he was at sea. The entire surface of the body, with the exception of the face, palms, and soles, was found to be the seat of the follicular disorder. The ducts of the sebaceous glands were occupied by comedo-like bodies, projecting sometimes one-fourth to one-half an inch above the surface. From many of the follicles small white hairs protruded. The comedos, when pressed out, were hard and dry. The hard portion of the comedo was continuous with an adhesive substance dipping deeply into the follicle. There was no evidence of irritative or suppurative action. They were not accompanied with itching.

The tongue was large and rough to the touch; the surface was deeply fissured, the fissures extending to the submucous tissue. The buccal mucous membrane presented a bluish-white appearance, thickened and raised in places, forming distinct plaques, which were superficially fissured. The patient stated that the tongue had been white and a little sore ever since he could remember. The absence of irritation, or marked sensitiveness of the fissured organ was quite noticeable. Examination seemed to exclude the possibility of a syphilitic origin. The speaker referred to other cases which had been reported. He objected to the term ichthyosis, since that suggests a disease of a different nature. He selected the term keratosis follicularis as more correctly expressing the pathological condition present, as well as indicating the anatomical seat of the disorder. Drawings representing the microscopical appearances of the lesions were presented.

While in the hospital the patient improved decidedly under the use of local applications of linseed oil. But within a short time of the discontinuance of the treatment, the condition became as marked as before treatment was employed.

EVENING SESSION.

DR. J. E. GRAHAM, of Toronto, presented

A CLINICAL STUDY OF SCLERODERMA.

He first related the histories of two cases of this rare disease, one of which occurred in the practice of Dr. Smith, of Seaport, Ont., and the other was referred to him by Dr. Jenner, of Pictou. The first patient, Mrs. R., forty-seven years of age, had previously suffered from rheumatism. The hardening of the skin began in March, 1882, and was first noticed over the back of the neck. It gradually spread, so that in about ten weeks the integument over the greater part of the body was affected. The movements of the limbs, as well as those of respiration, were impeded. The internal treatment adopted was liquor ferri iodidi and liquor arsenitis. A faradic bath over the surface of the skin was used. In six weeks the skin began to grow softer, and in ten months the patient was quite well. There has been no return of the difficulty.

The second patient, Mr. H., aged thirty-seven, came under observation in May, 1886. There was a history of hereditary rheumatism. The disease had commenced some months previously. The first symptoms were stiffness of the limbs, with œdema of the lower extremities; then hardening of the skin over the hips was noticed. This gradually spread, and was accompanied with pigmentation. The treatment consisted in the administration of potassium iodide at first, and latterly of salicylate of sodium. There has been some improvement under this treatment.

In his remarks in connection with the disease, the speaker referred to the following points: 1. That the disease is found principally in temperate climates, and occurs in seasons when there are sudden changes in the weather; 2. That it is more closely related to rheumatism than has been supposed; 3. That, although morphœa has in all probability a similar pathological origin to scleroderma, yet the clinical distinctions are so marked that at present it is expedient to treat it under a different name.

DR. L. N. DENSLOW, of St. Paul, in one case of scleroderma in which were two large plaques on each pectoral region, had seen benefit follow the daily use of the constant current, continued for six months.

DR. DENSLOW then reported a case of

CARCINOMA CUTIS.

The patient, aged forty-nine, had had a severe right-sided pleurisy, and presented the physical signs of ab-

sence of the right lung. The skin of the right chest from the second to the seventh rib, and from the posterior border of the axilla to the median line, was covered with a nodular new growth, which presented no ulceration. Around the nipple the nodular mass for an area of six square inches reached a thickness of an inch. The older portions of the growth were covered with thickened epidermis with thick brown scales. There was slight enlargement of the axillary glands. The whole mass was free from the fascia. It was not painful on pressure, but was the seat of occasional neuralgic pains. The duration of the growth was seven months. The patient died four months after coming under observation. The autopsy showed obliteration of the right lung. The left lung presented many small, solid nodules. In the mesentery there was a nodule an inch and a half long by one-half inch in diameter. The microscopic examination of these masses showed that in them all connective tissue preponderated. The growth on the skin occupied the papillæ and the deeper portion of the corium, and here, too, connective tissue greatly preponderated.

DR. I. E. ATKINSON, of Baltimore, referred to the extremely malignant nature of these growths. In a case of his own which presented appearances similar to that of Dr. Denslow's case, the disease ran its course in two or three months. These cases are so malignant that it would seem that no operative procedure is justifiable.

DR. R. W. TAYLOR, of New York, referred to two cases, both in men, which were, for a time, looked upon as cases of cancer of the nipple. They eventually turned out to be cases of hard chancre; in one the induration was so great that carcinoma was strongly suspected.

DR. I. E. ATKINSON, of Baltimore, read a paper on

SCARLET FEVER AND SCARLATINIFORM ERUPTIONS FOLLOWING INJURIES AND OPERATIONS.

He first referred to the cases on record. In many of these it was held that the affection had been a true scarlatina. In others the scarlatiniform rash was of a septic origin. Various drugs which are frequently prescribed in traumatic cases will produce such eruptions, special reference being made to the cinchona alkaloids. The following conclusions were presented:

1. Unprotected persons who have suffered injury or undergone operation are much more liable to scarlet fever than are healthy individuals. This probably holds good with reference to other infectious diseases.

2. When an epidemic tendency to these symptoms prevails after injuries and operations, it may be concluded that true scarlet fever is present.

3. Septicæmia is occasionally accompanied with a scarlatiniform eruption.

4. Medicinal eruptions, especially from cinchona alkaloids, may follow accidents and injuries.

DR. P. A. MORROW, of New York, said that a rash often follows the use of antipyrine, which frequently simulates scarlatina, although it is usually of a more measley character. Again, carbolic acid and iodoform dressings will often produce eruptions presenting the objective appearances of scarlet fever. There is another eruption known as the "doctor's rash," which appears upon the persons of sensitive individuals stripped for examination.

DR. L. N. DENSLOW related the case of a young woman who stated that a scarlatinal eruption always appeared upon her body on exposure to sunlight. In order to test the matter, she was directed to come to the hospital closely veiled and gloved. She was then placed in a dark room and one glove removed. A ray of sunlight was then allowed to fall upon the hand and at once a strip of erythema appeared. The same occurred on the face when it was exposed.

DR. I. E. ATKINSON, in closing the discussion, said that while he had seen the rashes mentioned by Dr. Morrow, he did not consider them in his paper, because he was specially interested in those scarlatiniform eruptions following traumatism, and he referred to medicinal eruptions only incidentally.

FRIDAY, AUGUST 27—THIRD DAY.

MORNING SESSION.

DR. S. SHERWELL, of Brooklyn, made some

REMARKS ON AND QUERIES AS TO THE RELATIVE FREQUENCY OF MOLES AND THEIR PATHOLOGICAL CHANGES ON THE HEAD AND FACE.

This class of affections receives very little consideration in works on dermatology, but the author's experience had led him to pay increased attention to these formations. In looking up the statistics of one of the institutions with which he is connected, he found that in a period of eighteen months, he had seen forty-seven cases suffering with neoplastic and hypertrophic growths. In thirty-six of the cases, the growths occupied the face and head. In only eleven cases were the growths found on the body and limbs. Seventeen of the cases, in which the growths were on the face, were classed as epithelioma. It might be urged that the exposure of the unclothed portions of the body would lead to the formation of neoplasms and the occurrence of destructive activity in them. If that were so, why should not telangiectatic deformities, nævi, etc., undergo degeneration? The speaker had never seen malignant action or what simulated it in such growths. Mechanical irritation of the parts might be considered one reason for the frequency of these growths and their malignant tissue alterations. But other parts of the body would seem more exposed to irritation than is the face. Moles, and similar growths, are common on other parts of the body as well as on the face, yet in other situations they seem less likely to undergo destructive pathological changes. The field electively most inimical to the presence of these growths, and destructive activity in them when already present, is a quadrangle just taking in the lower lip, the corners of the mouth, extending back to the ears of both sides and extending upward to about an inch above the supraorbital ridge. Of the space thus included, the vicinity of the eyelids and bridge of the nose, was, in the author's experience, the most usual seat of these growths.

The most rational explanation for the frequency of these growths in the situation described, is the nature and abundance of the circulatory nutrition, which must favor hyperplasia. If, however, we accept the above hypothesis, why should these errors of the capillary system, such as nævi, not oftener degenerate? He had frequently operated on these latter deformities, often causing much irritation, but had never seen more than

a slight keloid change result. The speaker then referred to the special danger of malignant degeneration which attends the presence of moles in persons of advanced life.

In regard to treatment, he stated that he had operated on these growths in many ways, and had come to the conclusion that when malignant action is either present or suspected, the combination of Volkmann's curette, followed by the potential cautery, is the most efficient and easiest method of treatment. Of all escharotics, he preferred the liquor hydrargyri nitratis.

DR. I. E. ATKINSON thought that the probable explanation of the frequency of the presence of moles, etc., upon the face as compared with other portions of the body, is that when in this situation patients seek relief, while when covered with the clothing attention is not attracted to them. We should expect that sebaceous new growths would be more commonly seen upon the face, because there we have the greatest activity of the sebaceous apparatus.

DR. JAMES C. WHITE, of Boston, considered that these new formations referred to are not more frequent on the face than on other portions of the body. That they undergo degeneration and form epitheliomatous new formation on the face more frequently than on other parts of the body, he thought, could not be doubted. He had never seen angiomatous formations undergo the so-called malignant change, but they do undergo degenerative processes tending to a spontaneous cure. Formerly he had used the liquor hydrargyri nitratis to a large extent as an escharotic, but within recent years he had substituted the concentrated nitric acid, and the effects obtained seemed to be about the same.

DR. L. N. DENSLOW said that for the past year he had used a solution of one drachm of bichloride of mercury in one ounce of traumatacine. Its application is not painful at first and does not excite inflammation for some time. It is particularly useful in the case of children.

DR. R. W. TAYLOR remarked that the author was to be congratulated upon the clear manner in which he had called attention to the danger of these various growths upon the face in a person over forty-five years of age. Such growths are very prone to assume malignant action. In the same connection, it may be remarked that any inflammatory mass about the prepuce, particularly if the result of anterior lesions, should, in old persons, always be ablated.

The Secretary read the

NOTES OF A CASE OF EXFOLIATIVE DERMATITIS (PITYRIASIS RUBRA ?), WITH BULLOUS LESIONS,

by DR. W. A. HARDAWAY, of St. Louis, who was unavoidably absent.

The patient, forty-five years of age, stout and somewhat nervous, was seen February 21, 1886. He had always been healthy. The present disease came on Feb. 1st, after a night of fatigue and exposure when heated. The following day a red patch appeared on the pit of the stomach. Others developed, soon running together, leaving no healthy skin between. There was very little scaling at first and no moisture. There was some degree of pruritus. When seen by the author the chest, arms, back, and thighs presented the usual appearances of pityriasis rubra. There was no moisture, crusts, or appreciable infiltration. The skin was shining and of a violaceous hue. In the morning a handful of scales could be gathered from the sheet, but they were not as large as usual and were inclined to be furfuraceous. The face was not involved. Three or four days after the first visit, there appeared upon the thighs, abdomen, and buttocks a number of tense bullæ. Their appearance was preceded by a distinct chill and followed by a moderate elevation of temperature. The blisters did not run into each other. The bullæ appeared in successive crops of not more than a dozen, each crop being preceded by a chill. Quinine was freely administered and at the end of a week the bullæ ceased to appear. Dr. Hardaway was obliged to discontinue his visits at this period of the case, but the patient gradually improved.

The writer thought that this and other cases which he had seen showed that diseases usually supposed to run a dry course, may under certain circumstances be complicated with lesions containing fluid.

DR. G. H. TILDEN, of Boston, reported

A CASE OF PROBABLE TUBERCULOSIS OF THE SKIN.

A healthy-looking boy of two years of age was first seen in July, 1885. There were six or eight cutaneous lesions scattered over various parts of the body. These were about the size of a split pea, slightly elevated above the level of the skin of a bright red color, which disappeared entirely on pressure. These nodules were hard to the touch with borders of sensible infiltration. They had appeared within the previous five months and had been very slow in growth. During the previous three months there had been failure in appetite and strength, and the child showed an indisposition to walk. He was under observation for three months, during which time one or two fresh nodules appeared. In nearly all the older ones, there ensued softening with formation of pus, which discharged and was followed by cicatrization. About two weeks after the first visit a fluctuating swelling the size of a hen's egg made its appearance on the inner side of the left thigh over the knee-joint, but not communicating with it; this was opened and pus discharged. It healed within a week. The general health became visibly affected. In November there appeared in the left buttock a swelling which gave an obscure sense of fluctuation. In the proximal phalanx of one finger there appeared a pyriform enlargement resembling that seen in dactylitis syphilitica. The child was again seen in February. The swelling in the buttock had increased in size and there was more fluctuation in it. There was at this time, sufficient outward curvature of the lumbar vertebræ to justify a diagnosis of Pott's disease. In his remarks with reference to the case, the speaker said that in the outset the diagnosis of the nature of the cutaneous lesion had been impossible, but from the subsequent course of the disease he thought the most probable diagnosis to be tuberculosis of an unusual form.

DR. L. N. DENSLOW made a supplementary report with reference to

THE TREATMENT OF ACNE BY THE USE OF SOUNDS.

At the last meeting he had reported five cases in which this plan of treatment had been of value. Four of these cases were adults, and all had remained well.

The fifth case was that of a boy about fourteen years of age, and in this case relapse had occurred.

Dr. S. Sherwell, of Brooklyn, stated that he had treated three cases of acne with the use of sounds, and believed that it was useful. He employed this method as an adjunct to other treatment.

A communication with reference to the organization of

A CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

was received and the following committee of conference, to report at the next meeting of the Association, was appointed: Drs. H. G. Piffard, of New York; F. B. Greenough, of Boston; R. B. Morison, of Baltimore; G. H. Tilden, of Boston; and Le Grand N. Denslow, of St. Paul.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. H. G. Piffard, of New York.

Vice-Presidents.—Drs. F. B. Greenough, of Boston, R. B. Morison, of Baltimore.

Secretary.—Dr. G. H. Tilden, of Boston.

Treasurer.—Dr. Le Grand N. Denslow, of St. Paul.

The Association then adjourned, to meet at the call of the Council.

CANADIAN MEDICAL ASSOCIATION.

Eighteenth Annual Meeting, held at Quebec, August 18 and 19, 1886.

Medical Section.

Wednesday, August 18.—First Day.

Dr. Canniff, of Toronto, in the Chair.

Dr. Daniel Clarke, of Toronto, read an able paper upon

THE MEDICAL JURISPRUDENCE OF CRIME AND RESPONSIBILITY.

The following were the conclusions arrived at:

1st, the natural history of crime shows that brains of chronic criminals deviate from the normal type and approach those of the lower creation.

2d, that many such are as impotent to restrain themselves from crime as the insane.

3d, that immoral sense may be hidden from expediency by the cunning seen even in the brutes, until evoked by circumstances.

4th, no man can shake himself free from the physical surroundings in which he is encased.

5th, crime is an ethical subject of study outside of its penal relations.

6th, insanity and responsibility may coexist.

7th, some insane can make competent wills, because rational.

8th, the monomaniac may be responsible should he do acts not in the line of his delusion, which are not influenced thereby.

9th, many insane are influenced in their conduct by hopes of reward or fear of punishment in the same way as the sane; the rudiments of free will remain.

10th, many insane have correct ideas in respect to right and wrong, both in the abstract and concrete.

11th, many insane have power to withstand being influenced even by their delusions.

Dr. Sherman, of Ogdensburg, spoke very highly of Dr. Clarke's paper. He himself, it so happens, is often called into court in cases of crime, or to give evidence as to the validity of a will when the sanity of the testator is under dispute. He observes that the views expressed by Dr. Clarke upon these difficult questions coincide most closely with those which his own observation has led him to adopt.

Dr. Howard thought the general principles laid down by the reader of the paper could not be made the subject of discussion, for upon them the profession was entirely agreed. These principles and the reasoning upon which they were founded had been ably set forth by Dr. Clarke. It was a matter for regret that the members of the legal profession could not be induced to see the matter in the same light.

Dr. Sullivan was afraid that many alienists still thought differently from Dr. Clarke, but he was glad to find that this Association was so unanimous in holding such advanced views upon the important matter of criminal responsibility. Dr. Clarke has shown us the difficulties that lie in the way of making a diagnosis in cases of mental disease, but he has failed to point out the remedy. The difficulties are even greater than in organic disease, and younger men would seem to require that experts should lay down some definite rules for them. It is, indeed, a question whether the ordinary practitioner can, or should ever be requested to give an opinion as to the responsibility of a doubtful individual. He has himself once given an opinion as to the entire sanity of a man who, shortly after, proved to be quite out of his mind, and who, indeed, subsequently was the author of the tragedy which ended the life of the lamented Dr. Metcalfe, of Kingston. The alienists themselves still differed much, and much was required to bring them into line, when it was possible for a well-known superintendent to say, as had occurred recently, that in his asylum all the males were mad through masturbation, and all the females through criminal abortion.

Dr. Clarke remarked that no man should hastily decide an obscure case of insanity—*i. e.*, after one or two hasty interviews. Some forms of insanity can be easily diagnosticated by the general practitioner, such as dementia, melancholia with delusions, and acute mania; but in cases of delusional insanity, care should be taken not to draw conclusions too rapidly. If the truth is to be arrived at, the specialist giving evidence should not be upon any side, but should be placed in a strictly independent position. Advanced students now in Toronto have the advantage of practically studying mental disease in the asylum, where Dr. Clarke also gives practical lectures. Those instructed in this way can back up their opinions upon good pathological grounds. A definition of insanity can never be given. The old legal ground of a capacity to distinguish right from wrong has done untold harm. The only means he knows of by which an opinion can be arrived at is to institute a comparison between the man as he is and his former self, the idea of which is to be obtained by a careful investigation into his past history, habits, etc.

Dr. Howard would not be understood to say that the profession was entirely at one upon all the points alluded to by Dr. Clarke, but merely upon the great general principles, especially the abandonment of the crude test of knowledge of right and wrong. He thought

that in all cases an independent jury of experts should be named—men whose position should be free from any leaning to either side, and whose decision would be final.

DR. DUPUIS, of Kingston, read a paper upon

DIABETES MELLITUS.

DR. CAMPBELL said that his attention had been strongly directed to the importance of temporary glycosuria from a case recently coming under his observation. A gentleman who, during the season, partook largely of strawberries and cream, was examined for life insurance, and refused, owing to the presence of a large quantity of sugar in the urine. Dr. Clarke re-examined him a short time after his diet had been changed, and found it entirely free from sugar. Such cases were not so rare as might be thought.

DR. D. CLARKE alluded to the frequent appearance of sugar in the urine just before and during acute accessions of mania in the insane.

DR. GEORGE ROSS said that certain cases of glycosuria—persistent, not temporary, as in Dr. Campbell's cases—required to be carefully distinguished from those of diabetes proper. In the former we might have sugar present in the urine for a great length of time, perhaps for years, and yet the symptoms which characterize true diabetes mellitus not showing themselves at any time. It would seem, therefore, that there are two distinct pathological conditions, in both of which the persistent presence of sugar in the urine may be a factor—in the one case coexistent with average health, and in the other marked by a peculiar set of well-known symptoms. In his most recent work upon diabetes, Dr. Milner Fothergill devotes special chapters to these quite different disorders, remarking at the same time upon the confusion on the subject that still exists in the minds of many medical men. To emphasize this, he relates the history of a case somewhat as follows: A physician in India, examining the urine of a patient, found sugar, desiring to be certain of his tests, he applied the various solutions to the suspected urine and to his own, side by side. To his dismay, he found his own urine loaded with sugar. He had been up to that moment in the most perfect health. Uneasy, he returned to England, and was given a strict anti-diabetic diet. His health failed rapidly. After a time he abandoned all attempts at treatment, and resumed his customary diet and habits in every way, with the result of being soon restored to as complete health as he had enjoyed before. Examples of this kind should teach a lesson to be careful in prognosis, and in estimating the effect of any medicine or other treatment in any given case.

DR. HOLMES alluded to the liability of those who have been temporarily glycosuric from improper diet to become diabetic. Such persons should always be cautioned against continuing the use of such articles of food for fear of serious consequences ensuing. He thinks that those physicians are most successful in these cases who begin early with a strict dietary and persistently enforce it. Has had some experience of bromide of arsenic, and thinks highly of it.

DR. GRAHAM thinks we might throw these cases into three classes—viz., 1st, Temporary glycosuria; 2d, A mild form of diabetes; and 3d, A severe form. In some cases of the last series medicine and diet have no effect whatever, whilst the milder forms are distinctly amenable to treatment, and are thereby either much prolonged or positively cured. In odd instances a glycosuria will be produced by a certain article of diet, and by that alone; a case of this kind from peaches had come to his knowledge. He thinks bromide of arsenic decidedly beneficial. Whether a coincidence or not, he could not say, but since he had begun the use of this drug all his cases had done well. The last of these he would mention. Two brothers, aged fifteen and twenty-two, were severely injured in the same accident; both became diabetic, all the symptoms, when first seen, being very severe. The urine had now diminished from twelve or fourteen pints to five pints, whilst the specific gravity had fallen from 1.045 to 1.028, and even that high figure was mainly from an excess of urea, because there was only a trace of sugar present.

DR. JENNER, of Picton, Ont., read a paper on

ALIMENTATION IN SICKNESS.

He dwelt chiefly upon the growing importance of dietetics in the management of sick people, giving many examples of the results of neglecting this department in favor of medication with drugs. He thought that the Canadian schools, as elsewhere, did not give sufficient attention to systematic teaching of the principles of dietetics to their pupils.

DR. ECCLES had often experienced difficulties in the way of having food suitably prepared for invalids. When he thinks it of special importance, he examines the food himself and gives directions for its preparation. We all rely too much upon medicine and too little upon diet. He thinks it often important to insist more upon the systematic, and perhaps frequent, feeding of patients. Persons who are weak should be allowed to take a light supper. To objectors, he points out that animals mostly feed before sleeping. During digestion there is more blood in the abdominal organs and less in the brain, a condition favoring sleep.

DR. HOWARD expressed himself much gratified at the thoughtfulness which had produced such a paper. It often requires courage, especially on the part of a young practitioner, to tell people that what they require is sunlight, fresh air, and good food, and not medicine.

DR. TRENHOLME hoped that the time is coming when we shall hear much more about diet than in the past.

DR. CAMPBELL maintained that the subject of dietetics was by no means so neglected as the reader would have us believe. He thought that, at the present day, every lecturer upon practice of medicine felt it a duty to lay stress upon the management of diseased conditions by attention to the dietary.

DR. CANNIFF said that in the Toronto schools the subject of sanitary science received considerable attention, and the matter of dietetics also held a prominent part in this course.

DR. PLAYTOR, of Toronto, read a paper on

THE VALUE OF MORTUARY AND OTHER HEALTH STATISTICS.

He alluded to the work already done in this direction, especially in Ontario, but showed that nothing had yet been accomplished to procure complete statistics for the Dominion at large. He urged the importance of having the subject of collection of statistics constantly brought before the attention of the general government. He

requested the Association to name a committee for this purpose.

Dr. J. E. Graham, of Toronto, then read a paper upon

CONTAGIOUS PNEUMONIA.

Dr. Howard said that after thirty-seven years' practice, and after having given a good deal of attention to the subject, it was beyond his experience to have met with such a series of cases as seemed to imply the existence of contagion. He would therefore conclude that there must be, in reality, two forms of the disease—one contagious and the other non-contagious. He thinks that, when we get such groups of cases as those related by Dr. Graham, in which pneumonia would *seem* to have been contagious, we are dealing with a disorder in some way different from the ordinary form of lobar pneumonia. We cannot say this is ordinary pneumonia which has assumed a contagious character owing to the existence of certain peculiar circumstances. If we consider the inflammation of the lungs arising from putrid emanations, we must admit that it is probably not a simple pneumonia, and that much has yet to be learned concerning its exact nature, differing, as it does, in area and in its course from the latter. These clinical features must be remembered even in the face of the evidence adduced from culture experiments, etc. What do the oldest amongst us say? Have they ever seen a case of pneumonia where they considered it proper to secure isolation or disinfection? In cases suggestive of contagion, the greatest care will have to be exercised in instituting an examination into all possible causes for the occurrence of several consecutive cases apart from an origin by direct communication. It is quite possible that sometimes an entirely different explanation may be arrived at. He remarked that in Dr. Graham's cases the consolidation was patchy. This is quite exceptional in ordinary lobar pneumonia, although frequently seen in septic cases. The relation of this disease, as well as others, to a microscopic organism is as yet by no means positively determined. Culture experiments afford very strong evidence of the bacteria being the real originators of the disease, but there remain still some debatable points which must be overcome before the doctrine can be considered definitely entertained.

Dr. George Ross said that, although seeing a large number of cases of pneumonia every year, he had not met with any such series of cases as necessarily suggested the association of the latter of these with the first by contagion. He knew of Dr. Wilkins's cases alluded to by the reader of the paper, and admitted that they gave support to the idea of contagion. It seemed to him that the extreme rarity of any such groups of cases tended to preclude the possibility of such a common disorder being contagious. If this arose from special surroundings, was it not singular that with hundreds of such cases passing before us, it should be the lot of only one physician at long intervals to meet with examples of its propagation in this way? What peculiar conditions can we think of which would act in this way? If ever contagious, should not this property be manifested oftener? He would rather be disposed to consider that in these localized outbreaks we are really dealing with an affection differing in some essential way, as yet unknown, from the common lobar pneumonia.

Dr. Gardiner, of London, had met with a series in one family which seemed to fall within the category of the contagious. The first patient, aged twenty, contracted pneumonia. The mother suffered from chronic bronchitis. She soon fell ill with the pulmonary inflammation. A third member of the family and a grandchild sleeping in the same room were both prostrated by pneumonia within a few days. The only other possible explanation seemed to be a very strong family tendency acted upon by an exciting condition to which all were equally exposed.

Dr. Foster, of Portland, Me., said that in 1872 they had an epidemic of pneumonia in Portland. A singular feature which he had observed in these cases was that in nine out of ten cases the consolidation affected the apex of the left lung. In about one month they had probably fifty such cases. The course of the disease was unlike ordinary pneumonia, and also unlike typhoid fever. In one locality twenty cases occurred. As Medical Health Officer, he was called upon to investigate the occurrence. On tasting the water supplied there, he found a disagreeable flavor, reminding one of clam-water. He found that this water was supplied to the greater part of the infected district and came from a deep well, being clear and cold. About ten rods above the well were a row of privies,—a main sewer leading from these was traced, and found to have burst and caused the entire soil intervening between it and the well to have become infiltrated with foul matters. The sanitary defects were immediately remedied, the use of the water forbidden, and the outbreak at once ceased. Another endemic he had witnessed also bore upon this discussion. A young boy died of pneumonia in the almshouse after an illness of only two days. Within forty-eight hours they had thirty cases, the consolidation involving either the whole lung or spots in the lung. He found that extensive repairs had been made in the sewerage and pipe-system of the establishment and to this he attributed the outbreak. The cases were treated by an emeto-cathartic at the outset, followed by iron and quinine, and no more cases were lost. He looked upon cases of this kind as being of the nature of some peculiar lung disorder, resulting from blood-poisoning. He has been thirty years in practice and has never seen a case of pneumonia which he had even suspected of being originated by contagion. During the outbreak he had noticed that the nurses and attendants were never attacked.

Dr. Cassidy, of Toronto, remarked that the true etiology of pneumonia is still very obscure. It occurrs alike in the houses of the rich and in the poorest hovels. Wherever contagion is thought of we must beware of coincidence which may mislead oftener than we think. The general causes predisposing to pneumonia are of great importance to the sanitarian, because they are remediable. It has been observed in armies that the men in the barracks have sometimes suffered a large mortality from pneumonia, whilst those in the open air have entirely, or almost entirely, escaped, and when removing from close barracks to open tents, the disease had completely ceased.

Dr. Graham, in reply, said that the patchy character of the consolidation did not apply in his first case. He would admit in his series a difference of type, but no pathological difference. The doctrine of the unity of

pneumonia receives strong support. Sternberg has found the same parasite in normal saliva as in malignant erysipelas and in pneumonia. If so, the disease is determined not so much by the parasite as by the soil in which it grows. Dr. Graham would still look upon all the pneumonic cases as belonging to the same disease—the first case of a series being an ordinary pneumonia, other cases following it simply because the *materies morbi* finds unusually suitable soil in which to propagate and increase. Those who have experience with the work of developing cultures in the laboratory know that it is a very difficult matter to find a soil upon which certain bacteria will grow at all. An example of this might be given in the microörganism of chloasma, the microsporon furfur. Dr. Klein searched a long time for a congenial soil, all the commonly employed substances turning out failures. Many bacteria also permit of only a very narrow range of temperature. If this vary within 5° F. they die. The question, "What is the cause of ordinary pneumonia?" yet remains unanswered. A predisposing condition of the system is no doubt necessary. In Dr. Foster's cases, the polluted water may have so disturbed the system of those using it as to play the part of a predisposing cause.

Dr. J. H. Gardiner, of London, then read a paper on

THE INHIBITION OF THE HEART IN DIPHTHERIA.

The striking features of the cases related were the marked slowing of the pulse, followed, in two instances, by fatal syncope.

Dr. Graham had no doubt that the heart failure here was due to a poison acting upon the nervous centres. Recent discoveries pointed to the development of poisonous substances in ways not yet thought of, as, *e. g.*, in normal urine, and in the formation of ptomaines. In diphtheria, poisons may form and be absorbed. It is quite possible that even in tetanus, which was alluded to by the writer as opposed to this view, the same thing might occur. In some way not yet understood, a peculiar chemical substance might be produced, having an attraction for the spinal cord, and acting as an irritant upon it.

Dr. George Ross said that the theory last mentioned seemed the one best calculated to explain the occurrences. He would, however, caution against always attributing a sudden syncope after diphtheria to a central impression. When preceded by inhibitory symptoms, as in Dr. Gardiner's cases, there appeared no reason to doubt this explanation, but he had met with sudden fatality during the convalescence from this disease, where the autopsy showed clearly that the destructive change consisted in extreme fatty degeneration of the heart. Here there had, however, been no symptoms whatever, the pulse remaining at the normal rate. The possible existence of this structural change was another reason why every precaution should be taken during the period of convalescence.

Thursday, August 19.—Second Day.

Dr. F. W. Campbell read a paper on

THE TREATMENT OF WHOOPING-COUGH BY QUININE.

He spoke of the unsatisfactory character of the treatment usually adopted, and stated that a severe case of the disease in his own family had specially directed his attention to it. He referred to a paper by Dr. Dawson, Professor of Diseases of Children in the University of New York, on the quinine treatment of whooping-cough, which appeared in the *Canada Medical Record* for July, 1873, also to one by Professor Binz, of the University of Bonn, on the same subject, which was published in 1870. The authors of these papers considered pertussis as a neurosis of the pneumogastric nerve, caused by irritating and infectious mucus that accumulates in the pharynx and larynx. In this mucus was found a fungus, on which quinine had a specific action. Quinine also increased the secretion from the buccal and salivary glands, and thus assisted very materially in loosening the tenacious mucus from the pharynx. Dr. Campbell stated that in his hands the quinine treatment had been most successful, and that he now had notes of over one hundred cases of this disease treated in this way, with most satisfactory results. For children of three years and under, he gave it in doses of half a grain every two or three hours, and proportionately in larger doses up to twelve years of age, when two grains might be given. It should be administered in solution, and *no* sweetening should be added to disguise the taste.

Dr. Sherman, of Ogdensburg, New York, said he had used quinine in whooping-cough with excellent results. He considered it the very best treatment. He had, however, used sweetening to disguise the taste, and judging from results, saw no objection to it.

Dr. Macfarlane, of Toronto, said he had seen an article by Dr. Campbell on this subject a few years ago. Since then he had used quinine in pertussis, and had had excellent results.

Dr. Graham, of Toronto, had employed quinine extensively in pertussis, and could endorse most heartily Dr. Campbell's good opinion of it. Sometimes he had combined it with tannin. So far as his experience went, he saw no objection to the sweetening of the quinine mixture.

Dr. Campbell, in reply, stated that Dr. Dawson very strongly objected to any disguising of the bitter taste of the quinine. He had followed the directions in this respect, and was satisfied that they were correct. In fact, he was strongly of the opinion that even the appetizing effect of quinine is much interfered with by the addition of any syrup.

Adjourned.

CORRESPONDENCE.

GYNECOLOGICAL OPERATORS IN GERMANY.

The great rapidity with which pelvic surgery has advanced within the past few years, and the very varying successes of different operators, have tended to develop marked individual traits, and, in a large measure, to accumulate much of the material in the hands of a certain few men. In no country are there to be found, at the present date, so many well-trained scientific gynecologists as in Germany, and it is to the writer a very pleasant task to record some of the experiences which he has had, owing to the courtesies of three of the leading operators in that land. Through the extreme kindness of Dr. M. Sänger, of Leipzig, and the courteous attention extended to the writer by Prof. Carl Schröder and Dr. A. Martin, of Berlin, every possible facility for following their work was afforded.

It is hardly necessary to remark that Schröder, Martin, and Sänger are men of genius, and that every movement of theirs in connection with their work has a definite purpose, and a fitness peculiarly pleasing to the trained gynecological eye. The methods of Professor Schröder and Dr. Sänger are in most respects similar, and are characterized throughout by extreme care and attention to details, by deliberation in operating, by fertility of expediency, and a quiet certainty, inspiring universal confidence in the extent of their resources.

A brief description of Prof. Schröder's work will, then, to all practical purposes, describe that of Dr. Sänger. Upon requesting an invitation to the Frauenklinik, a card is given to the visitor, with printed conditions of his visits: That he shall not have seen any contagious cases, or come into contact with any infectious material within forty-eight hours; that he shall bathe, and come to the operating-room in clean linen. Ten or fifteen spectators are usually present, besides five assistants. The visitors are usually notified of the operation by postal card the day before, and at seven or eight o'clock in the morning the operation begins.

The Frauenklinik is situated in the heart of Berlin, on the banks of the Spree, and is, like many other medical and scientific institutions under imperial patronage, palatial in all its appointments. Among the visitors assembled in the waiting-room on the first floor are to be found doctors from the East and West of America: an active bright surgeon connected with the St. Louis Polyclinic; two of our brightest female practitioners in the East, who have bravely fought down every obstacle in their determination to see good work; doctors from the schools in France and Italy, from Chili, Japan, Holland, and from other parts of Germany; Dr. Küstner, of Moscow, a pupil of Pirogoff, and the translator of the Russian edition of Sims's *Uterine Surgery;* and Dr. Muchertschiansk, of Tiflis, in Georgia, well known through his valuable contributions to the *Wiener medicinische Wochenschrift.* The latter had been the assistant to Martin, the father, fifteen years before. The operating-room is on the second floor, well lighted from the whole western side, with painted walls, a very high ceiling, and a smooth stucco floor. A row of stationary stone washstands on one side of the room, and a long table holding solutions of bichloride and carbolic acid, bandages, iodoform, and dishes complete the furniture.

The patient lies on an iron frame table, the assistant dropping chloroform on a small flannel cap covering mouth and nose, while another usually has his hand on the pulse. Professor Schröder is at the patient's left side, while Dr. Hofmeier, usually his immediate assistant, and already well known by his writings, stands opposite, ready to sponge, control the abdominal walls, and render such other aid as may be required.

Consistent with the present status of antiseptic surgery, and bacteriological science in Germany—that is, with the positive convictions of the German surgeons that pyæmia, erysipelas, septicæmia, and probably all forms of suppuration, even the simplest, result from the intrusion of organic impurities upon the field of operation, and the development there of certain specific, more or less toxic properties—in consistence with this view, the most elaborate and important measures have all been taken *before* the operation has begun, and the keynote to the whole may be found included in the instructions to visitors—the intention is *not so much to war with germs during the operation, as to perform an operation upon a field where no germs are present.* Under these conditions, then, weaker germicidal solutions are used during the operation, solutions which, while powerless to destroy virulent germs in any numbers, yet destroy the few, and have been shown to exert a checking action upon their growth.

A strong spray has been playing for hours in the room; clothing, instruments, hands, and sponges have been thoroughly disinfected (heat is a favorite method for disinfecting instruments); the patient has had repeated baths; and now, just before operating, Dr. Hofmeier, with a large sponge and soap, most thoroughly washes the abdomen, thighs, and genitals, and follows this with a free douching and a solution of corrosive sublimate, 1 : 1000. Thus all is clean—"*peinlich*" and "*pilz-rein.*" The spectators group themselves around the foot of the operating-table, with their backs to the light, and follow Professor Schröder's movements as, with a few rapid strokes, he lays open the abdominal walls down to the peritoneum, and, without stopping to clamp superficial vessels, with a few light touches with the point of the scalpel, or by pinching up and nicking the peritoneum, lays open the abdominal cavity. The grooved director is never used, and a dissection of layers is never attempted.

If the tumor is an ovarian cyst, of but a few pounds in weight, it is turned out whole, and the base quickly tied off and seared; the larger vessels in the stump are again tied separately, and the operation completed in about twenty minutes. If the cyst be large it is freely incised, and emptied by rolling the patient over on her side. The sac is then turned out of the incision and adhesions discovered, cautiously separated, and all bleeding points either cauterized or ligated. There is no fear of using too many of the properly prepared fine silk ligatures. One case presented extensive dense pelvic adhesions, and the writer felt here an especial interest in observing the technique. Although eminent authority has declared that "ovariotomy is now a closed chapter," we may hope that, so long as the leading operators differ so markedly in their methods, and the percentage mortality still ranges in the tens, and, above all, our resources in dealing with the most formidable complication, pelvic adhesions, continue to be limited to enucleation, and the slow, dangerous, and often incomplete process of tearing loose and tying, we may at least hope for a *future appendix* to the chapter. In tying broad surfaces, where many would throw one ligature around the whole, or at most transfix and tie, Professor Schröder used many ligatures, and afterward secured by ligation such large vessels as could be discovered in the stump, such is the extreme care to prevent retraction and hemorrhage.

After a careful but not elaborate or prolonged toilet, the incision is closed by stout silk sutures placed an inch apart, with a superficial skin suture alternating. Iodoform is then powdered freely over the wound, and the dressing completed by a piece of rubber gauze, absorbent cotton, and a bandage.

It is impossible to characterize either Professor Schröder's or Dr. Sänger's work by any marked peculiarities. To a trained eye the use of the instruments, the quick

touch, the quiet confidence begotten of experience, speak volumes.

Dr. August Martin, on the other hand, while enjoying a reputation for skill and genius equally great, has strong personal peculiarities connected with every step of his work, which at once impress the most superficial observer.

Although not connected with any public institution for teaching, Dr. Martin forms private classes of instruction every few weeks into which most of those not making flying visits are admitted, and are afforded all the vast clinical facilities of his private hospital, and in addition are thoroughly instructed in minor gynecological operations practised upon Winckel's phantoms, in which actual parts—vulva, anus, and pelvic viscera have been skilfully inserted. Dr. Martin's hour for operating is eleven in the morning or twelve noon, and he invariably waits to perform three or four laparotomies at one sitting. Visitors stay down stairs until called by an assistant, they then file up to a special room, where coat, vest, and suspenders are removed, and they enter the operating-room in their shirt sleeves.

The operating-room is small, dingy, and narrow, smelling powerfully of carbolic acid spray. The patient lies at its further end under the window, supported from buttocks to head on a low galvanized iron table, the anæsthetizer and an assistant at the head; behind these the two fair American doctors, and grouped in a crescent on the patient's left the other spectators. Dr. Orthmann or Dr. Czempin are seated on the left assisting, and opposite is Frau Horn, a personage of more than local repute. Dr. Martin sits on a low wooden stool at the foot of the table and directly in front of the patient, whose legs hang over its edges. Dr. Martin and the assistants wear rubber shoes, and the spectators usually stand on a very wet floor throughout the operations.

No description of Dr. Martin's work would approach completeness without some account of his head nurse—Frau Horn. Originally associated for one or two years with Professor Schröder, she has for many years past identified all her interests with Dr. Martin. She is a woman of about middle age, stout, very quick, and with a bright, pleasant face. She makes every preparation for the operations, often takes entire charge of difficult cases in Dr. Martin's absence, and at an operation lends an assistance equal to any I have ever seen at the hands of the best trained hospital resident. She always anticipates the surgeon's wants, and he finds knife, scissors, or needle-holder in his hand without the delay of asking for them. She takes an intelligent interest in every step of the operation, which, in view of the valuable assistance she is rendering, is not obtrusive. She possesses, in fact, all the qualifications so desirable in a chief nurse, a woman all but a surgeon, yet content to remain a nurse. Her notions of absolute cleanliness are as rigid as those of Dr. Martin himself. On one occasion, during my stay in Berlin, a restless patient ruptured the stitches in the abdominal wound in the night and the bowel protruded. Frau Horn carefully cleansed and returned the intestine, reintroduced the stitches and redressed the wound.

She invented both operating and examining tables used by Dr. Martin, as well as the two curious instruments which he figures in his book, and uses in anterior colporrhaphy and perinæauxesis—the broad-ended knife and the comb.

The same careful preliminaries are observed here as at the Frauenklinik. Dr. Martin begins his work seated between the patient's thighs, and holding his knife like a pen, opens down to the peritoneum with a few bold sweeping strokes, and nicking this and slitting it up on the finger, within a minute the abdomen is open, the hand introduced and he is grasping the tumor. If the tumor be of a simple nature, it is quickly rolled out and the operation completed. The visitors then retire to await the next summons, and often another, and still another.

Frau Horn says "Dr. Martin is a true artist in his work," and, indeed, in his use of the knife, and his wonderful skill and certainty in introducing sutures in deep, almost impossible places, and by his general rapidity and assurance, he certainly justifies the assertion. In some cases, which in other hands would prove very tedious or even impossible, his methods are very remarkable, and even at times startling. Tumors fixed in the pelvis by adhesions, impacted myomata, and tubes and ovaries matted in old and recent exudates, are grasped and dragged out with the exercise of great strength, and they often yield with suddenness, producing a great suction sound which is alarming. If the field is in the least impeded by the intestines, they are all turned out and held in a towel, as originally practised by Dr. Martin's father.

In cases of hysterectomy, of which the writer saw a number, the tumor was lifted well up, and the lowest part of the uterus which could be reached firmly grasped by an elastic ligature. Deep lateral ligatures controlled the uterine arteries. The tumor was then shelled out, and the uterus split down to within a short distance of the ligature, the two sides were then amputated so as to leave a funnel-shaped hole in the cervix, which was scraped out, disinfected, and closed by three stages of continued sutures. When completed and dropped, the stump, always intraperitoneal, presented the appearance of a purse puckered across the top, with the line of sutures in the coronal axis of the body. When any considerable bleeding occurred sponges were packed into the pelvis, the operation continued, and the bleeding points caught and tied afterward.

Both Dr. Martin and Professor Schröder opened cases of cancerous disease, in which there was nothing to do but close the incision immediately. The former also opened two cases of tubercular peritonitis which were closed at once. These operations occurring once or twice weekly, it would often be possible to see seven laparotomies in one day, as both operators prefer waiting until there is more than one case to operate upon.

The facilities for seeing surgical, and especially gynecological, work in Berlin are not surpassed, and, I believe, scarcely equalled in any other city in the world.

Beginning with Professor Schröder's operations at seven in the morning, followed always by an admirable practical discourse, which is often replaced by operative midwifery, in the Entbindungs Anstalt, and Professor Bardeleben's clinic at the Charité at ten, and at eleven Dr. Hahn's clinic at the Friederich-Hain, in a room with most perfect equipments, and at eleven or twelve Dr. Martin's operations, in the afternoon. Again, the visitor is always sure of seeing major operations at Professor Bergmann's clinic, at the Kœnigliches Klinikum,

and at five can attend Professor Gusserow's admirable course at the Charité.

The trouble is not in finding occupation but in disposing of an *embarras de richesse*, and for the most advanced scientific work, for facilities, for courtesy, and, for what is not unimportant to many, good and cheap living, my advice is "go to Berlin."

Howard A. Kelly.

Edinburgh, August 2, 1886.

POISONING BY CASTOR-OIL BEAN.

To the Editor of The Medical News,

Sir: It is a fact probably not generally known, even to the profession, that the seeds or beans of the "castor-oil plant" (*ricinus communis*), quite commonly grown in gardens for ornamental purposes, are actively poisonous. The knowledge of the familiar oil expressed from them naturally induces the idea that the beans have similar medicinal properties and are equally harmless, but it is evident from the effects which they produce when taken internally that they contain other much more powerful constituents than the oil. This is true also of the cotton-seed. Cotton-seed oil is a perfectly bland oil, frequently sold as "sweet oil," and now largely exported from New Orleans to Italy, to be thence imported into this country as "fine olive oil." Yet an infusion of the seeds is, I am informed, a popular remedy in the South against intermittents.

Numerous fatal cases of poisoning by castor-oil beans have been reported, and three of them are said, upon good authority, to have caused death in an adult. A serious, though fortunately not fatal case, in which twelve or fourteen of the beans were eaten by a middle-aged woman for the relief of obstinate constipation, occurring recently in my own practice, has led me to ask the use of your columns to call attention to the danger of allowing the beans to be eaten carelessly or ignorantly.

Yours respectfully,

Edwin H. Bidwell, M.D.

Vineland, N. J.

NEW INVENTIONS.

A NEW SERIES OF BERLIN WOOLS FOR THE SCIENTIFIC DETECTION OF SUB-NORMAL COLOR-PERCEPTION (COLOR-BLINDNESS.)

By CHARLES A. OLIVER, M.D.,

one of the ophthalmic and aural surgeons to st. mary's hospital, philadelphia, etc.

Believing that Holmgren's method for the detection of color-blindness is the best, I have devised a new series of loose wools in an endeavor to place his plan upon a more substantial basis. In this set there are three series of colors:

1. Five principal test-skeins. These are pure colors. Latin names are employed to represent them. They are made of equal intensities, and are not designated except by being made of large size.

2. A series of twenty small pure match skeins. Each skein is either a pure tint or a pure shade of one of the large skeins, and has a black bangle containing lettering fastened to it; the inscription indicating that the skein is either a certain tint or shade.

3. A series of seventy-two small confusion match skeins. Each skein contains a mixture of certain percentages of light and shade of two of the large skeins. Each has a bangle which shows that is of such a character.

The wools are to be wrapped in black muslin, and will be enclosed in a black box, which will also contain an explanatory sheet with the colors arranged in their proper order, together with a book of instructions and a spectacle frame with a movable stop.

In addition to the good qualities possessed by the Holmgren wools, the following special advantages can be claimed for the new system:

1. *Five principal tests.* Pure blue and pure yellow have been added.[1] This has been done because both of these pigments serve as useful tests in the detection of the barely perceptible changes in color-sense which occur in the incipient stages of optic nerve disease.

2. *The wools are loose and separate.* By this the candidate has the entire mass of color from which to select, and there is nothing by which judgment as to plan can be brought into play.

3. *The colors are all of equal relative intensity.* This makes the selection a question of color choice alone; any interference to accuracy being avoided by keeping free from the power of skilful shading possessed by the "color-blind."

4. *Each skein has its value expressed.* Every skein becomes a unit of worth, and is related to every other skein. This has been done by the selection of colors of relative intensities, and by the use of a system of bangles which is incomprehensible to all but the initiated.

5. *It can be employed by any educated layman.* By means of the bangles the registry of the choice is easy for anyone who has been made acquainted with the method. A report of the selection can be copied upon a printed form, which can be sent to any authoritative person by whom it can be studied, and the color-sense of the examinate properly and fully determined.

6. *Accurate notings of passing color-changes can be preserved for future comparison.* This is of importance in furnishing means by which more accurate study of disease can be made, better notions of prognosis given, and more useful plans of therapeutics applied.

7. *Written and verbal expression of the character and amount of subnormal color-perception can be given.* This will afford the reader of any article or hearer of any paper upon this subject, more exact data in reference to the nature and degree of the color-changes noted. The vague terms now employed can be discontinued, and expressions like those used for the acuity of vision, etc., substituted.

8. *All the wools are of the same grade of manufacture.* This destroys, in measure, any argument against the employment of this material in color-testing, because here the chances for selection, by the use of touch, are greatly lessened.

9. *All the colors are from vegetable dyes.*[2] By this,

[1] The rose (purple) test of this series has more red in it than is found in this sample among Holmgren's wools. This has been done so as to get all of the principal test-skeins of the same degree of saturation and intensity.

[2] Some of the dyes of the present invoice are not vegetable in character, although they have been employed because differentiation by the sense of touch is impossible upon account of the equal

any error that might arise from harshness of color-surface allowing detection by the sense of touch is avoided. Besides, such colors are more lasting to light exposure, and not so subject to the objection of possessing odor.

10. *The use of a black surface in testing.* Here there is nothing but a display of color. Contrast is avoided, and any chance for the formation of subjective after-colors lessened.

11. *Any order of testing may be pursued.* This is done by naming the tests, so that any color may be taken first.

12. *Quantitative determination as well as qualitative determination obtained at one sitting.* This has not been accomplished by any other method.

This series of wools were exhibited at the late meeting of the American Ophthalmological Society. James W. Queen & Co., of Philadelphia, have gone to considerable expense and difficulty in having all of the wools imported from a large European house. Sets will be ready in a short time.

1507 Locust Street.

NEWS ITEMS.

The Manufacture of Quinine by Synthesis.—According to the *Lancet*, a remarkable discovery, by which the price of quinine may be reduced to something like 3*d.* per ounce, has been made by Mr. Cresswell Hewett. The synthetical manufacture of quinine was first suggested to Mr. Hewett in 1869 by the late Dr. Mattheson, of St. Bartholomew's Hospital, whilst giving his assistance in a course of experiments in connection with apomorphia. Subsequently, Prof. Parkes, of Netley, aided with his advice, and to these gentlemen, rather than to himself, Mr. Hewett modestly explains that the process is due. The importance of this discovery is rendered greater by the fact that while hitherto we have been depending for our quinine on the cultivation of the cinchona tree, from the bark of which only about two per cent. of good quinine can be extracted, ninety-eight per cent. being valueless, the drug can now be manufactured without limit by a very simple process from an article which can always be got in abundance in any part of the world.

Death from Bromidia.—A telegram to the Austin *Statesman*, from Waco, Texas, announces the death on July 6th, at the latter place, of Dr. Joseph Willis from an overdose of bromidia, taken for the relief of pain. The Texas *Medical Journal* speaks in very high terms of the deceased, who although only thirty-eight years old, had been for several years a prominent member of the Texas State Medical Association.

Food Inspection in Ohio.—A law has been enacted in Ohio creating the office of dairy and food commissioner. His duty is to inspect any article—butter, cheese, lard, syrup, sugar, or other articles of food and drink—and to prosecute corporations, firms, or persons engaged in the manufacture or sale of any adulterated or counterfeit article of food or drink in violation of the laws of Ohio.

Sir William Stokes, of Dublin.—A Dublin correspondent of *The Lancet* writes: "The numerous friends of the President of the Royal College of Surgeons in Ireland will be gratified to learn that he has received the honor of knighthood at the hands of his Excellency the Lord-Lieutenant. Sir William Stokes is an able exponent of Irish surgery, a gentleman of high professional eminence, and possessed of abilities of no mean order. A clever writer, an eloquent speaker, and an honorable gentleman, Sir William holds a foremost place in professional circles in Dublin. The only regret that can be felt is that the higher dignity was not conferred upon a gentleman who holds the highest position the Fellows of the Royal College of Surgeons could bestow upon him. It cannot be denied that successive Governments have dealt very shabbily with the medical profession in Ireland, and it is to be hoped—although from the past little can be expected—that the new Government may see their way to reward the profession in Ireland as in other portions of the United Kingdom."

Prof. Langenbeck has just undergone an operation for cataract at the hands of Dr. Pagenstecher, and was dismissed from the clinic, perfectly cured, at the end of eleven days.

Professor Bouchard has been elected member of the Académie de Médecine.

A Munificent Gratuity.—A gratuity of £10,000 has been granted from the Bavarian Civil List to the widow of Prof. von Guden, of Munich, who perished with the late King of Bavaria in the lake at Castle Berg. He left a family of eleven children.

Tea-drinkers' Diseases.—It is not a little curious that the diseases arising from the wrong use of tea should be met with in greater frequency in countries foreign to its growth. It might have been supposed that where production went on there would be found those evils that attend the consumption of tea in their greatest extent; but such does not appear to be the case. The diseases due to tea are well known to physicians, but the public seem to be strangely indifferent to the teachings of their medical advisers in these matters. Recently in France, M. Eloy has reminded medical men how vast is the number of diseases owning an allegiance to the dominion of Queen Tea. The list of headings in M. Eloy's paper is well calculated to arouse attention, and, we hope, to lead to some abatement of this widespread disorder. America and England are the two countries that are afflicted most with the maladies arising from the excessive consumption of tea. Individuals may suffer in a variety of ways. It is customary to speak of acute, subacute, and chronic "theism"—a form that has no connection with theological matters. It is possible to be a "theic" by profession or a "theic" by passion. The predominance of nervous symptoms is a characteristic of theism; general excitation of the functions of the nervous system may be observed; or the weakness may be noted more especially in the brain as distinguished from the spinal

intensities. In order to avoid any error whatever, attention will be paid to this question in all future selections.

I shall be pleased to assist anyone in obtaining the proper selection of wools, and to give all necessary information in reference to their manufacture.

cord. Perversion of the sense of hearing is not at all an uncommon symptom—patients hearing voices that have no real or objective existence. The irritability that overtakes women so frequently may sometimes be clearly traced to an excessive indulgence in afternoon tea. It is a mistake to suppose that it is the poor sempstress who is the chief sufferer from theism. No doubt the tannin which tea that has been standing long contains does a great amount of mischief, but the derangement that it causes hardly belongs to that class of diseases with which we are at present concerned. Rather does theism belong to that genus of disease in which morphinism, caffeism, and vanillism are found. The habit of tea-drinking is one that grows on its victims like the similar ones of opium or alcohol. Taken in strict moderation, and with due precautions in the mode of preparation, tea is, like alcohol, a valuable stimulant; in its abuse there is also a certain analogy. There is hardly a morbid symptom which may not be traceable to tea as its cause. This is a fact that general practitioners often use to their own satisfaction and to their patient's advantage, if it happen to be that kind of patient who does not object to make some sacrifice in order to be rid of troubles.—*Lancet*, July 3, 1886.

Cholera in Japan.—News comes from Japan that the cholera epidemic there becomes more and more intense. Strangers, and the Japanese in good circumstances, are not suffering much from its attacks, but the poor native population is almost decimated.

Irregular Schools.—The following is a list of colleges, the diplomas of which will not be recognized by the Iowa State Board of Health:

American Eclectic College, Cincinnati; American Health College, Cincinnati; American University of Pennsylvania (Buchanan), Philadelphia; Beach Medical Institute, Indianapolis; Bellevue Medical College of Massachusetts; College of Physicians and Surgeons, Buffalo, N. Y.; College of Physicians and Surgeons, Milwaukee; Eclectic Medical College of Philadelphia; Edinburgh University, Chicago and St. Louis; Excelsior Medical College, Boston; Hygeo-Therapeutic College, Bergen Heights, N. J.; Hygeo-Therapeutic College, New York City; Joplin Medical College, Joplin, Missouri; Livingston University, Haddonfield, N. J.; Medical Department of the American University of Boston, Boston; New England University of Arts and Sciences, Boston; New England University of Arts and Sciences, Manchester, N. H.; Penn Medical University, Philadelphia; Philadelphia University of Medicine and Surgery, Philadelphia; Physio-Eclectic Medical College and Physio-Medical College, Cincinnati; St. Louis Eclectic Medical College, St. Louis; St. Louis Homœopathic Medical College, St. Louis; Curtis Physio-Medical Institute, Marion, Indiana; American Anthropological University of St. Louis; Medical Department of Drake University, Des Moines, Iowa; and King Eclectic Medical College, Des Moines, Iowa.—*Iowa State Medical Reporter.*

Examination of the Royal College of Surgeons of England.—The following questions were submitted to the candidates at the recent final examination for the diploma of Member: *Surgical Anatomy and the Principles and Practice of Surgery.* (Candidates were required to answer at least four (including one of the first two) of the six questions, and were strongly advised to answer all six questions.) 1. Give the relations of the femoral artery in the middle of the thigh, and describe the operation for applying a ligature for punctured wound at that part. 2. Describe the position and attachments of the omohyoid muscle. State fully its relations to the larger vessels of the neck, and its use as a guide to the operator. 3. What is an intussusception of the bowel? Give its causes, diagnosis, and treatment. 4. Give the differential diagnosis of ascites, ovarian tumor, and pregnancy. Describe the operation of ovariotomy. 5. Give the signs of a dislocation of the radius and ulna backward. What structures would resist reduction? How would you reduce the dislocation, and in what position would you put the limb afterward? 6. How would you diagnosticate an acute inflammation of the middle ear? What are the dangers of such a case? Describe its treatment. *Midwifery and Diseases of Women.* (Candidates were required to answer three of the four questions.) 1. How would you distinguish between a face and breech presenting? Describe the management of labor when the breech presents. 2. How would you treat a case of partial placenta prævia when the os uteri is dilated to the size of half a crown and hemorrhage is present? 3. What is puerperal eclampsia? What are the pathological conditions with which it is associated? How would you treat a case (1) before the attack, (2) during the attack? 4. What is pelvic hæmatocele? What are the conditions for which it may be mistaken, and how would you make the diagnosis? *Principles and Practice of Medicine.* (Candidates were required to answer three of the four questions, including question No. 4.) 1. What are the causes, symptoms, sequelæ, diagnosis, and treatment of diphtheria when it affects the fauces and pharynx? 2. Describe the causes, appearances, and treatment of ringworm; give the prognosis and diagnosis. 3. What are the different kinds of hemiplegia, and how does each kind enable you to predicate the seat and nature of the lesion? 4. Give the composition, uses, and doses of cerii oxalis; injectio morphiæ hypodermica; liquor strychniæ; oleum terebinthinæ; pulvis ipecacuanhæ compositus; pulvis kino compositus; tinctura camphoræ composita; tinctura cannabis indicæ.

Medical School in Turkey.—Turkey has a medical school at Constantinople, at which there are annually more than three hundred students, of which number some sixty are graduated. Each course continues during nine months of the year, and six years must be spent in medical study before a diploma can be received. Instruction is given in the Turkish language, as most of the students are Turks.

Responsibility of Druggists.—A Montreal man lately sued a druggist for damages for having been deprived of work for several weeks in consequence of taking poison sold him by mistake. The error was caused by the wholesaler, who had labelled the package wrongly before selling it to the druggist. The court held, however, that the druggist should have verified the contents of the package, and gave judgment for two hundred dollars and costs.

A Professional Sinecure.—It is officially announced that Señor Rafael Alcalde y Buril has been appointed surgeon-dentist to the infant king of Spain, whose birth lately gave rise to so much rejoicing in the Spanish capital. The *Globo* inquires, very naturally, whether the young king was born with teeth. In any case, the post of this professor of the gentle dental art will, for some months to come, be as much a sinecure as that of the surgical instrument-maker who was recently addressed by a country customer as "suspensory bandage-maker to Her Majesty."—*British Medical Journal.*

Deaf-mutism in Spain.—According to Señor Don J. Lopez Navalon, Principal of the National College for Deaf-mutes in Madrid, the number of persons afflicted with deaf-mutism in Spain is more than 10,090. For these there are, beside the Madrid College, which is supported by the State, only four other institutions in the provinces, and these are all supported and managed by private enterprise.

Cremations at Père la Chaise.—Next month the Parisians will be able to burn their dead in four crematory furnaces, which have just been finished at Père la Chaise. These furnaces were begun last November, and have been hurried on to completion, so that by the end of August, at latest, those who, in dying, express the wish to be cremated can be there reduced to ashes. There will be no first, second, and third class cremations. Poor and rich will be on a footing of absolute equality. The price charged to those who can afford to pay for the burning of a corpse will be 15 f.—or say 12 s. The furnaces were constructed on plans by MM. Barrett and Formice. A large portico is in front of a dome, beneath which are placed the crematory furnaces. They have the appearance of very elegant ovens. Three hundred and fifty thousand francs is the price they cost. They are according to the Corini system, in use in Rome and Milan. It was found that the heat of the Siemens furnace was too intense. Instead of reducing the corpse to ashes, it subjected it to a kind of vitrification. The cost, too, would be 200 f., instead of 15 f., to cremate with a Siemens furnace. The unclaimed bodies at the hospitals which are not used for anatomical purposes will be taken to the crematory at Père la Chaise. Sculptors, goldsmiths, and bronze-casters are already busy designing urns, of which an assortment in marble, bronze, gold, silver, zinc, or lead will be kept at an office of the crematory. The relatives of the cremated dead can buy these vessels, and cause them to be removed to family vaults or to a building which the city of Paris is to erect. There could be no greater boon to a large city with overcrowded cemetries than the furnaces of Père la Chaise. I cannot conceive anything more disrespectful to the dead than the way their remains are treated here, even when a first-class burial can be provided, if there is not a family vault in which to place them. Buying a grave is no simple matter. The delays are endless, and the application for one must go through many bureaus before official consent is given. Then there are other formalities to be gone through. Meanwhile the corpse is in a charnel house, called a provisional vault, at a cost of 1 f. a day. The removal thence to the grave, which must be in masonry at the sides, is a cause of danger to the public health.—*London Daily News.*

The Vatican and Cremation.—The Roman Holy Office has issued a decree forbidding Roman Catholics to belong to cremation societies, and the practice of cremation is stigmatized as *detestabilem abusum corpora humani cremandi.*

Height and Weight.—Dr. Broca, the eminent anthropologist, is the author of a formula relative to the height and weight of the human body. It is that the body should weigh as many kilogrammes as it measures in centimetres, after deduction of the first metre. Thus, a man measuring one metre eighty centimetres should weigh eighty kilos. Should his weight be more or less, he is too stout or too thin. As men grow older they lose weight, but as a compensation they diminish in height also.

Indestructibility of Human Hair.—That human hair retains its characteristics for long periods of time, and, indeed, is well-nigh indestructible, is a fact of common observation. A remarkable instance of this is found in a wig which has recently been discovered in an Egyptian temple at Thebes, and is now deposited in the British Museum. It is supposed to have been part of the attire of an Egyptian priest, and from the circumstances of its discovery is regarded as being at least 3400 years old.

A Pair of Centenarians.—There has recently died in St. Petersburg Madame Goruli, a contemporary of the Empress Catherine II., and a lady of the court of the Emperor Paul I. She is stated to have been 114 years old. Among those who attended her funeral was her sister, who had attained the age of 113, but who was still so robust as to be able to follow the bier on foot.

Apparent Intoxication.—There is reason to fear, says the *Lancet*, that mistakes are not unfrequently made, even by skilled observers, in the recognition of drunkenness, by what may be called "apparent intoxication." The unsteady gait, the congested face and neck, the vacant eye, with drooping lid, and even the spiritous breath of apparent intoxication, may one and all be the effects of disease or disturbance of function, which has no necessary connection with the abuse of alcohol in any form. A melancholy instance of blundering in respect to this matter may be cited from the life of the late Colonel Herbinger, who, as our Paris correspondent mentioned last week, was accused of intemperance during his field service at Tonquin, but happily acquitted. Professor Peter, who had opportunities of studying the case of this recently deceased officer shortly before his death, elicited that he was suffering from a malady of some years' standing, which produced cerebral anæmia with such giddiness that he could scarcely sit on his horse. Similar cases are by no means uncommon, and while it is more than ever necessary to denounce the practice of permitting police officers to determine whether a man or woman is drunk or the victim of disease, it is requisite to go much further than this, and to call the special attention of skilled practitioners in medicine to the possibility of being mistaken by erroneous impressions on this subject. Not only will anæmia of the brain, however induced, cause giddiness, but certain forms of defective assimilation

will bring about the same results, together with symptoms still more deceptive. We need to study more closely the effects of an excess of oxalic acid in the blood, of accumulated uric acid, or urate of ammonium, of acetone, etc. Something has been done in this direction; but, so far as we are aware, the precise cause of a peculiarly offensive odor of the breath, expelled from the mouth, seemingly distinctly alcoholic, has not been satisfactorily made out, although several good clinical observers with a fair knowledge of the chemistry of digestion and elimination have undertaken to solve the problem. It would be useful to investigate the subject further; more light is desirable, and even necessary.

Priority in the Use of Potassium Iodide in Aneurism.—Duroziem points out, in *l' Union Médicale*, 1886, No. 44, that the credit for priority in using potassium iodide in aneurism is not due either to Chuckerbutty or to Balfour, as generally stated, but to Bouillaud. This observer published in the *Gazette des Hôpitaux*, for February 8, 1859, a paper entitled "Two cases of aneurism treated by iodide of potassium; gradual and complete disappearance of one, decided improvement in the other."

Necroptic Entomology.—In a discussion of medico-legal subjects at a recent meeting of the Académie de Médecine, M. Laboulbène said that entomology ought to render great service in tracing the probable length of time that a body had been dead. The *insectes necrophiles*, or carrion insects of the earlier decomposition, leave their prey in a regular order of succession. There comes a time, however, when the dry horny portions alone are left, and even these are attacked by the attagenes, anthrenes, and ptionioses, etc. in a certain definite order.

Dr. Charles D. Homans, of Boston, died at Bar Harbor, on the evening of Thursday, September 2d. Dr. Homans was born in Brookfield in 1826, and was educated at Harvard College, receiving his degree of B.A. in 1846, and of M.D. in 1849. His father, Dr. John Homans, was a noted physician in his time, and his grandfather was a surgeon at the battle of Bunker Hill. He was a member of the first surgical staff of the Boston City Hospital, and at the time of his death was the senior visiting surgeon to the institution. He was President of the Massachusetts Medical Society for two years, resigning only a few weeks ago, and at the time of his death he was President of the Massachusetts Humane Society.

Dr. Thomas A. McBride, of New York, died at sea on board of the North German Lloyd Steamship "Aller" on Tuesday, August 31st, aged forty years. He had been at Karlsbad during the summer for the benefit of his health, and seemed greatly improved until a few days previous to his departure from London, where he was taken ill. He recovered sufficiently to enable him to proceed to Southampton where he was able to board the "Aller." On the steamer everything possible was done for him by Captain Hammelman and Surgeon Norr, assisted by Dr. D. B. St. John Roosa, of New York, who was a fellow passenger. It was evident, however, by the following afternoon that he was conscious of his approaching death. After bidding good-bye to some friends who were with him, he relapsed into semi-consciousness, from which he did not rally. He was buried at sea at midnight on Tuesday. Dr. McBride was attending physician to the Presbyterian Hospital, and a well-known specialist in diseases of the nervous system.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from August 31 to September 6, 1886.

Middleton, P., *Major and Surgeon.*—Assigned to duty at St. Francis Barracks, St. Augustine, Fla., as Post-Surgeon.—*S. O. 126, Division of the Atlantic*, September 2, 1886.

La Garde, L. A., *Captain and Assistant Surgeon.*—Upon departure of Third Infantry from Fort Ellis, Montana Territory, to proceed to Camp Sheridan, Mammoth Hot Springs, Wyoming Territory, and report to the commanding officer for duty, relieving Assistant Surgeon Pilcher.—*S. O. 87, Department of Dakota*, August 27, 1886.

Crampton, L. W., *Captain and Assistant Surgeon.*—Relieved from further duty at Bellevue Rifle Range, and granted leave of absence for one month, to take effect before rejoining his proper station (Fort Bridger, Wyoming).—*S. O. 108, Department of the Platte*, August 28, 1886.

Pilcher, James E., *First Lieutenant and Assistant Surgeon.*—When relieved by Assistant Surgeon La Garde, from duty at Camp Sheridan, to return to his proper station (Fort Custer, Montana Territory).—*S. O. 87, Department of Dakota*, August 27, 1886.

Wood, L., *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered to report by letter to the Commanding General of the Department of Arizona, for assignment to duty.—*S. O. 202, A. G. O.*, August 31, 1886.

Mason, Chas. F., *First Lieutenant and Assistant Surgeon.*—Relieved from duty in the Department of the East and assigned to duty in the Department of Arizona.—*S. O. 203, A. G. O.*, September 1, 1886.

Walker, Freeman V., *First Lieutenant and Assistant Surgeon* (recently appointed).—To report in person to the Commanding General, Department of the East, for assignment to duty.—*S. O. 203, c. s., A. G. O.*

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending September 8, 1886.

Dickson, S. H., *Passed Assistant Surgeon.*—Detached from the Naval Academy, October 1, 1886, and ordered to Navy Yard, Washington.

Lippincott, J. G., *Passed Assistant Surgeon.*—Ordered to Naval Academy, October 1, 1886.

Shippen, E., *Medical Director.*—Detached from Naval Hospital, Philadelphia, Pa., and ordered to attend officers of the Navy and Marine Corps at Philadelphia not otherwise provided with medical aid.

Hord, Wm. T., *Medical Director.*—Detached from Examining and Retiring Boards at Washington, October 5th, and ordered to Naval Hospital, Philadelphia, Pa.

Dean, R. C., *Medical Director.*—Ordered to duty as a member of Examining and Retiring Boards at Washington, October 5, 1886.

Bransford, J. F., *Surgeon.*—Detached from U. S. S. "Iroquois," and ordered to Naval Hospital, New York.

Hall, C. H. H., *Passed Assistant Surgeon.*—Detached from Naval Hospital, New York, and ordered to Naval Hospital, Yokohama, per steamer of 21st inst.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Three Weeks Ending September 4, 1886.

Bailhache, P. H., *Surgeon.*—To proceed to Cape Charles Quarantine, as Inspector, August 27, 1886.

Fessenden, C. S. D., *Surgeon.*—Granted leave of absence for thirty days, August 30, 1886.

Godfrey, John, *Surgeon.*—To proceed to Biloxi, Mississippi, and investigate alleged yellow fever cases, September 1, 1886.

Irwin, Fairfax, *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, September 2, 1886.

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ORIGINAL LECTURES.

HELMINTHIASIS—TAPEWORMS.

A Lecture Delivered at the Medical College of Ohio.

BY JAMES T. WHITTAKER, M.D.

THE term helminthiasis, which was formerly used to express a peculiar dyscrasia, the so-called verminous crasis of the older writers, is limited in our day to signify simply the presence of mature worms (helminths, *ἑλίω*, I roll or twist) in the intestinal canal, or immature forms in the organs and tissues of the body. For it is now well established that parasites occur in the body, not by spontaneous generation, or as the expression of disease of the intestines, but only as the result of the ingestion of their eggs or embryos with the food and drink.

Of the whole number of known parasites of man, now in the neighborhood or fifty, twenty-one occupy the interior of the body as the so-called entozoa. Most of these forms are so rarely found as to constitute clinical curiosities, and many of them have never been observed in our country. In fact, but four varieties—the tapeworm, the round worm, the thread worm, and the trichina—are so commonly encountered as to demand especial study by the practitioner of medicine.

With the exception of the trichina, these parasites were known to the physicians of antiquity. Mention is made in the works of Hippocrates of the tapeworm (*ταινία*, a band), the round worm (*στρογγύλος*, round), and the thread worm or ascaris (*ασκάριζω*, I spring), forms which still retain their ancient names. But the most extravagant and erroneous views were entertained of them up to the middle of our own century. Thus Valisnieri believed them to be inherited, Gœtze and Abildgaard claimed that they assisted digestion by consuming the intestinal mucus, and exciting peristalsis, as the Abyssinians still believe, and Jördens went so far with these teleological conceits as to call them the guardian angels of childhood. On the other hand, intestinal worms were supposed to engender all kinds of diseases, and as late as the eighteenth century they were thought to produce scurvy, dysentery, and diabetes. Post-mortem examinations, which disclosed them, interpreted them as a cause instead of a coincidence of disease. Thus, Droste found on autopsy twenty-nine round worms as the cause of basilar meningitis, and Parkinson five tæniæ as the cause of incarceration of the bowels. Valisnieri describes how worms penetrate the vessels to reach the blood; and Waurach, as late as 1844, taught their origin from damp habitations, the excessive use of flour and potatoes, restraint of the emotions, abstinence from coitus, etc. Encysted worms were at this time universally believed to arise by spontaneous generation.

Existing knowledge of intestinal parasites begins with the observations and experiments of Siebold, Steinstrup, Küchenmeister, Davaine, and Leuckart, in 1840–60, which revealed the various metamorphoses and migrations of the egg, the larva, and the fully developed forms, often in different hosts. These changes of form are, however, no more to be considered as alternations of generation, as they are sometimes erroneously described, than are the changes from the ovum to the fœtus, and the mature form of man, which differ in the same or even greater degree.

The first recognition of a difference in the varieties of tapeworm was made by Felix Plater, in 1602, with the discovery of the bothriocephalus (*βοθρος*, a pit) latus, thus named by Rudolphi in 1810. To these forms was added a third, the tænia mediocanellata, or saginata, by Küchenmeister in 1852. The tænia echinococcus (*εχινος*, the hedge-hog) was first distinguished as a living thing by Pallas in 1760, and its scolices (*σκώλιος*, crooked) recognized as the tapeworm heads by Pastor Göze in 1782. Except in the case of the bothriocephalus latus, the larva of which has just been discovered by Braun, of Dorpat, the development of the larval into the mature form in all the varieties of tænia in man was demonstrated by the feeding experiments of Beneden, Siebold, Leuckart, and more especially Küchenmeister, who verified his observations on animals in the bodies of criminals which he was permitted to use.

The history of the trichina (*θριξ*, *τριχος*, a hair) is purely modern. Calcified remnants of this parasite in muscle were looked upon as dissecting-room curiosities up to 1835, when Pajet took a specimen to Owen, who gave it the name it bears. Leidy, in 1846, discovered in a piece of ham upon his plate the same immature form which was still regarded as an innocent, wandering, nematoid form until 1860, when Zenner discovered it in myriads in the muscles of a patient who had died of a disease diagnosticated as typhoid fever, but marked by extreme pain in the muscles, with œdema of the surface, which symptoms he correctly attributed to the presence of the parasites. Virchow, Leuckart, and Zenker then demonstrated their migration from the intestines to the muscles, and two years later, in 1862, Friedreich made the first diagnosis of the disease in life with the detection of the parasite in a piece of exsected muscle.

The difficulties encountered in the study of these parasites become apparent with the recognition of the difference of the host in the various stages of development. Thus the mature tænia saginata (fat) lives only in the small intestine of man, while its larva or cysticercus dwells in the muscular tissues of the ox. Möbius met it once in a giraffe confined in a zoölogical garden; and Zenker, Cobbold, and Heller bred it repeatedly in the goat and sheep. The mature tænia armata is also found only in the intestine of man; its larva or cysticercus in the flesh of the pig, dog, deer and polar bear (in confinement). The mature tænia echinococcus inhabits exclusively the small intestine of the dog and the wolf, while its larva, the echinococcus, is found in the

liver and various organs of man, the ape, ox, sheep, horse, hog, and many other animals. The mature bothriocephalus latus lives in man, and allied species in many fishes, while its larva infests the bodies of fresh water fish—the pike, trout, eel-pout, etc. The liver fluke, an occasional inhabitant of the liver of man, and much more frequently of the sheep, in which animal it constitutes the disease known as the "rot," lives in its immature form in the body of a fresh-water snail; and the trichina spiralis which occurs in both the mature and immature form in man, and in many other animals —the pig, rat, rabbit, cat, and fox, is received into the body of man by the ingestion of the immature form in pork. As a curiosity illustrative of the difficulty of detection of larval form at times, may be mentioned the case of the tænia elliptica, which in maturity inhabits the intestine of the dog, while its larva is found in the louse of the dog (Leidy).

Tapeworms (cestoides, κεστος, embroidered, a belt; ειδος, like).—Of the three hundred species of tæniæ in the whole animal kingdom, but four are found in the body of man, viz., in the order of frequency in our country, the tænia saginata, armata, echinococcus, and lata, or bothriocephalus latus, derived respectively from the ox, pig, dog, and fish.

The whole animal in its maturity consists of a head (scolex), a slender neck, which, at some distance from the head, shows transverse folds or wrinkles, deepening later or lower down into furrows, which indicate the separate segments (proglottides) of the body. The head of the tapeworm is oval, about the size of a pin's head, and is provided with two to four equidistant suckers about its upper surface. The segments four to twelve hundred and more in number are at first longer than broad, then in some cases quadrate, and finally broader than long. Upper are let into lower segments, and union is firm at first, but lax toward the end of the worm, where detachment easily occurs. New segments are produced from the neck, so that the last segment is always the last so long as it remains united to the rest. Hence the necessity of securing the extrusion of the head in the total extirpation of the worm. Each segment contains or is filled with the generative apparatus of both sexes; hence the animal is hermaphrodite. It is also self-impregnating. The bulk of the segment is taken up by the uterus, which forms an elongated central cavity, with radiating branches stuffed with eggs. The male element is comprised in a bunch of seminal vesicles which empty into a seminal duct, terminating at a pore in the lateral margin of the segment common to the uterine opening or vagina. These genital pores are disposed alternately, or on opposite sides of the different segments.

The tapeworm fastens itself by its suckers to the mucous membrane of the small intestine, the body floating free in loose folds or elongated along the course of the canal, from the contents of which it imbibes nutrition by osmosis. The contents of the large intestine will not support it. It is feebly endowed with motion, so that detached segments voided with feces may migrate by slow vermicular action a few feet from the seat of deposit. More extensive change of place is effected by outside agencies—running of water, processes of manuring, wandering animals, etc. Each segment may contain as many as 53,000 eggs, so that a tapeworm producing 800 ripe segments a year may furnish an annual contribution of 42,000,000 eggs. Fortunately, in the struggle for existence, myriads fail to find the necessary conditions; thus Leuckart calculates the chances of development of an egg to a cysticercus as 1 : 1340, and to a mature worm as 1 : 85,000,000. The tapeworm may live in the intestinal canal from ten to fifteen years.

The egg of the tapeworm is a rounded or ovoid body, provided with a thick envelope containing an embryo endowed with hooklets. Received into the body of an appropriate host, it is freed of its envelope by the action of the gastric juice, protrudes its head, and appears in the form of the larva. The larva is, of course, an undeveloped tapeworm. It has the same head and neck, much reduced in size, but the body remains a vesicle. It is always provided with hooklets, by means of which it bores its way through the walls of the stomach or intestine, to be lodged in adjacent structures or to be carried off by the lymph or blood current to distant organs, where it may excite a destructive inflammation or encysted, remain innocuous. The muscular structure of the body is the soil of predilection, and muscle thus affected is said to be "measly," from measle, a spot. In the course of three or four months the vesicle attains its full development, to the size of a large pea; a new head develops from its inner surface, and the larva becomes a cysticercus (κυστις, bladder; κερκος, a tail). The cysticercus lives, as a rule, from three to six years, when it perishes to undergo calcareous degeneration; but ingested during its life into the stomach of man, it attaches itself to the small intestine, reproduces segments which become sexually mature in the course of three or four months. Periods of quiescence usually occur in this regard. Bettelheim records a case in which no segments were given off in the space of three years. Ordinarily but one tapeworm is found in the body of man, yet abundant instances are recorded of the presence of two or more of the same or different varieties at the same time, or of their coincidence with other forms of intestinal worms. Beranger Feraud once found twelve in the body of one individual, and Kleefer, of Görlitz (*Deutsche Klinik*, 1853), records a case in which forty-one tæniæ were discharged with heads.

The different varieties of tapeworm may be readily distinguished. The tænia armata, or pork tapeworm, erroneously called solium, because less frequently found alone than any other form, is known by its coronet of 22–32 hooklets, whence its name, on the circular rostellum, of its head, which is likewise provided with four small circular suckers. Its segments number 750–825, becoming sexually mature at the 450th member, as recognized by the presence of the genital pore, so that the worm may reach a length of 7–10 feet. They are at first longer than broad, then quadrate, and finally extremely oblong, whence the synonym cucurbitina. They are rarely discharged, except at stool. The uterus consists of a median cavity, never quite reaching the upper or lower margins, with 7–12 lateral branches, radiating irregularly like the branches of a tree, hence dendritic. Its larva, the cysticercus cellulosa, provided with four suckers and six horns, is found in the tissues of the pig, dog, deer, rat, sheep, ape, and bear, as well as in man, in the liver, subcutaneous connective tissue, muscle, eye, and brain. Its circular ova contain also

six hooklets. The tænia armata is found wherever raw or half-cooked pork is used as food.

The tænia saginata, or beef tapeworm, erroneously called medio-canellata by its discoverer, the narrow cylindrical uterus having been mistaken for a median canal, sometimes still called lata, because of its breadth, is known by its greater thickness and breadth, whence its name. Its head is larger and more square, and being devoid of a rostellum and hornlets, more flat on the top. It has likewise four suckers (though there is of this species, as well as of the armata, a variety which has six). The whole worm, more especially the head, is rather darker from the presence of more pigment matter than the tænia armata. The neck is shorter and broader. It is larger than the tænia armata, its twelve hundred and more segments measuring from ten to fourteen feet. Each segment is broad and long, often one-half by one inch. The body of the uterus quite reaches the upper and lower margins of the segment. But it is more narrow than in the armata, and all its branches are finer. These lateral branches, more numerous than in the tænia armata, fifteen to twenty-seven on the side of the genital pore, thirty-one on the opposite side, are always given off dichotomously. The segments are voided, not only at stool, but often also spontaneously. Patients who are continually or occasionally discovering detached fragments in their clothes are nearly always hosts of the tænia saginata. Its larva is found in cattle and various other ruminants, but not in man. Its eggs, of which each segment may contain 35,000, are oval, larger than those of the tænia armata, and void of hooklets. The tænia saginata is found wherever raw or rare beef is used as food; consequently much more frequently in our country than the tænia armata. Leidy states that the tapeworms from Philadelphia and its vicinity which he had occasion to examine in the last twenty years, "perhaps in all about fifty," were specimens of tænia saginata. The condition assumes epidemic proportions in Abyssinia, where the flesh of cattle is eaten while still quivering with life. A mature worm was reared from a beef "measle," purposely swallowed by a student, in fifty-four days.

The tænia lata, or bothriocephalus latus, differs in marked degree from the preceding varieties. It is the longest of all the tapeworms, its 4000 segments attaining a length at times of twenty-five feet. The head is long and narrow, and is slit at the sides to form the bilateral elliptical suckers which give the worm its name. The segments not sharply separated are twice to four times as broad as long. The central uterus has the appearance of coils of intestine. The genital pore is central on the ventral face. The cysticercus is provided with spiculæ and a ciliated envelope, by means of which it swims in water. The eggs are oval and are furnished with a lid (operculum) at one end to afford escape of the embryo. This species of tapeworm is found wherever raw or partially cooked fish is used as food, consequently in Russia and Sweden, East Prussia, Poland, and parts of Switzerland, not in our country. The sole specimen thus far reported in our country was found by Leidy, derived from the body of a recently immigrated Swede. The mature tænia lata is found in the intestine of the dog as well as in man.

The tænia echinococcus, or hydatid tapeworm, is the smallest of all the tapeworms, measuring but one-quarter of an inch in length. It lives in the mature state in the dog and wolf, not in man; the whole duration of its life being not more than seven weeks. The head resembles that of a diminutive T. armata in that it is furnished with four suckers, a rostellum and a double row of hooklets. The segments, in number but four, progressively increase in size to the last, which is as large as all the rest, and which is alone mature.

The larva (echinococcus) of this tænia which infests man and many of the herbivora, horse, ox, sheep, etc., differs from that of all other tapeworms, in that it is endowed with the property of self-multiplication to a degree limited only by the restraint of outside pressure. The eggs issuing from the anus of the dog and brought often in contact with the nose and mouth of this animal, may be thence received into the mouth and stomach of man where the six-hooked embryo is liberated to penetrate the walls of the intestines and emigrate to various parts of the body. From the fact that the liver is found infested more frequently than all the other organs together, the inference is natural that the embryo is carried thither by the portal vein. Measly liver fed to dogs reproduces the mature T. echinococcus in the intestine of the dog. Having reached its destination in whatever organ, including the bones, the echinococcus develops the hydatid tumor, which may consist of a single cyst, or by proliferation from its inner wall of multiple daughter cysts, or from them in turn of granddaughter cysts, to the number of many hundreds. The fluid of hydatid cysts is clear and limpid. It is distinguished by the presence of common salt and the absence of albumen. The echinococcus tumor is rare in our country. Osler saw it three times in 800 autopsies in Montreal, and after ransacking museum catalogues, journals, society proceedings, etc., he could find but sixty-one cases in the whole of North America up to the year 1882. But it is safe to say that the majority of cases in our country do not find their way into print. For instance, the pathologist of the Cincinnati Hospital, a thoroughly competent observer, informed me, on the occasion of reporting the only case which occurred in my own practice, that he had himself seen three cases since the beginning of his service, none of which was reported. It is common in countries where the dog is a most intimate companion of man. In Iceland, where the dog shares with man both board and bed, the disease is epidemic, one-fifth of all sheep and one-seventh of mankind being thus affected, females, from their indoor life, oftener than males. Four to five per cent. of sheep are also thus diseased in Victoria, Australia, where the affection is likewise very common in man.

Mature tapeworms are seldom dangerous to man. In many cases they produce no symptoms of any kind, and their presence is recognized for the first time upon the post-mortem table. Or the discharge of segments with the stools, the appearance of them in the clothes at other times, is the first indication of their presence. Individuals who use water-closets may thus entertain these guests unawares until on some occasion the feces are voided visibly, as upon the ground in the open air or in a night vessel. As no mature worm penetrates the intestinal wall or evolves noxious products, what symptoms do occur are due to mechanical irritation of the intestinal walls or are reflex manifestations. Thus,

anorexia, nausea and vomiting, colic, diarrhœa or alternate constipation, heartburn, pyrosis, flatulence, the group of symptoms characteristic of gastric catarrh, summed up under the vague term dyspepsia, and, as effects, lassitude with malaise and depression of spirits are not infrequently present. A ravenous or insatiable appetite is exceptional, and when present is due not to the consumption by the parasite of nourishment, which is insignificant in amount, but to reflex irritation or defective assimilation, the result of irritation. More importance may be attached to morning vomiting which, in the absence of more common causes, pregnancy, gastric catarrh, cirrhosis, tuberculosis, Bright's disease, etc., may be an index to the condition. Young children or highly sensitive adults may exhibit more pronounced disturbance of the nervous system. Thus, dilatation of the pupils, itching of the nose and anus, palpitation of the heart, choreic manifestations, even veritable convulsions, epilepsy, have been observed in these cases. But the symptoms caused by intestinal parasites are exaggerated as a rule. All the symptoms mentioned may be produced by any cause that will excite the same irritation, and grave accidents are to be attributed to tapeworms only in cases where the symptoms subside with the expulsion of the worms. Rare cases of this kind are recorded. Thus, Williams describes the case of a young girl who was cured of a periodically recurring blindness and deafness of several hours' duration by the extirpation of a tapeworm, and Homolle reports a case of epilepsy cured in the same way. In some cases grave symptoms admit of a different explanation. In this regard, especial danger attaches to the pork tapeworm, in that the deglutition of its eggs or their premature discharge in the intestinal canal may lead to the development of cysticerci in the same host. This accident may take place in sleep when the hand is used to relieve itching or irritation at the anus or moist segments escaping from the anus and crawling about on the skin are grasped in relief of unpleasant sensations. Küchenmeister often found fingers contaminated in this way. Cases of self-infection have also happened from careless handling of worms after their expulsion. Moreover, the act of vomiting may introduce segments into the stomach, where eggs may be liberated to develop into cysticerci. Seeger mentions six cases of ejection of tapeworms by the act of vomiting, and Rebsamen reported the case of a woman who withdrew a tænia lata from her mouth with her fingers. Frankenhäuser relates a case of cysticercus in a patient who had previously vomited a tapeworm, and Lewin (Charité Annalen V.) collected a number of such cases. In two of Gräfe's cases of cysticercus of the eye, the patients, while hosts of the worm, had suffered from the vomiting of pregnancy; and in the cases of cysticercus of the brain reported by Möller, the patient had had a tapeworm expelled twenty years before death. Thus, the existence of severe nervous symptoms would awaken the suspicion of the presence of cysticerci. But examples of this kind are quite exceptional. In the vast majority of cases grave nervous symptoms are due to other and more obvious causes.

The diagnosis of the condition of the patient is sometimes quite obscure. The only positive proof of the existence of tapeworms in the body is the presence of segments in the stools or clothes. As in most cases eggs are not discharged in the intestines, it is very rare to find them in the stools. Where reasonable doubt exists, the administration of a cathartic or of an innocent anthelmintic, to be followed by a cathartic, may secure the proofs. Differentiation of the form of tapeworm is easily made. The segments are flattened by pressure upon the object-glass and examined with a power of 500 diameters, when the characteristic features of each form become apparent at a glance. Dried specimens should be first softened in water. The occasional evacuation of segments, independent of stools, or the discovery of them in the clothes, speaks in favor of the tænia saginata. The echinococcus tumor may sometimes be recognized by its situation. It has, as stated, a marked predilection for the liver. Or the fluid contents of a cyst may be withdrawn by an aspirator and tested for the presence of salt and the absence of albumen. Scolices and hooklets may be exceptionally discovered in the fluid on microscopic examination.

Palpable tumors communicate to the hand a peculiar unmistakable tremulous thrill. Deep-seated fluctuation of a hydatid tumor may be distinguished from that of an aneurism, abscess, or common cyst by the examination of aspirated contents. In all cases of tapeworm, and especially after treatment, the feces are to be subjected to close examinations by repeated washings that the minute and easily overlooked head of the worm may be discovered.

Prophylaxis. The subjection of meat to a boiling temperature throughout, which effectually destroys all cysticerci, is the chief preventive of tapeworm. The recognition of this fact with regard to the trichnia spiralis has already diminished the number of cases of tænia armata. Cleanliness is the factor of next importance. The oriental custom of ablutions before each meal may be commended in this regard. Individuals affected with the disease should be enlightened as to the fact that they are possible sources of infection of others. Bettelheim speaks of having seen in a house of poverty and squalor segments of tapeworm deposited upon and crawling about the floor, furniture, and beds. Butchers, cooks, all persons employed in the preparation and distribution of meats, should be cautioned as to the necessity of cleanliness of hands, instruments, vessels, and clothing. To prevent infection of animals with eggs, habits of decency in regard to the deposit of feces should be enforced, and check should be put upon the barbarous custom of promiscuous defecation. A Texas physician informed Prof. Leidy, to whom he had sent a piece of measly pork for examination, that all the pigs in the place were thus affected and that there was not a privy in the whole village. In the administration of anthelmintics to the subjects of the pork tapeworm, selection should be made of such remedies as will not cause vomiting. Especial attention is to be paid in this regard to the relief of the vomiting of pregnancy. Physicians as well as patients need repeated injunction against the careless handling of tapeworms in their examinations. Specialists who have devoted a large part of their lives to the study of intestinal parasites become exceedingly careful in their manipulations. Küchenmeister states that he always handles tapeworms with two pairs of long forceps seizing them as near the points as will secure firm purchase; and Cobbold warns against the danger of leaving specimens about or care-

lessly throwing them away, with the emphatic injunction to destroy them by fire.

The Greek and Roman physicians possessed sixty remedies for the cure of tapeworm, and the number has been greatly increased in our day. But few of these agents, however, have stood the test of time. Such uncertainty has attended the use of most of them as to have left the treatment of the condition a fertile field for quacks. This uncertainty depends, however, upon the lack of observance of a few simple precautions, the chief of which consists in the evacuation of other contents of the bowels as effectually as may be, that the remedies used may come in direct contact with the worm. Elaborate preparatory and supplementary treatment is now in the main superfluous, but a light diet during the day, or better, a fast broken only by a cup of coffee or a glass of milk should precede the administration of the remedy selected. These remedies may be ranked in efficacy as follows:

1. The bark of the pomegranate root of which three ounces should be macerated in twelve ounces of water for twelve to twenty-four hours, to be then reduced one-half under gentle heat. The whole quantity is to be taken in divided doses in the course of an hour. Pomegranate root remains the most effective of all anthelmintics, and would long since have excluded all others did it not at times produce nausea, vomiting, and colicky pains. To avoid the first of these evils, Bettelheim suggests the introduction of the infusion into the stomach by means of the stomach pump, and to obviate all of them, Feraud recommends pelletierin, an active alkaloid of the root named in honor of the discoverer of quinine. One to two drachms of the infusion of senna is to be taken on the morning following a day of fasting, and in the course of an hour one-fourth to one-half of a grain of the tannate of pelletierin suspended in water. Half an hour later the same dose is repeated, to be followed in an additional half hour with a tablespoonful of castor oil, the patient remaining meanwhile quiet in bed, to avoid disturbance of the stomach. In one instance twelve beef tapeworms were expelled at once in this way.

2. Turpentine is a powerful tæniacide, but the use of it is liable to cause headache, pain in the stomach, fever, and strangury. These effects are, however, much less frequent after large than small doses. Hence the dose for an adult should be never less than one to two ounces, for a child, one drachm to one ounce according to age. It may be administered in emulsion with white of egg or be briskly stirred in half a glass of milk and swallowed rapidly. Should it fail to act as a cathartic, it should be followed with a dose of castor oil.

3. Male fern, the ethereal extract, two drachms in four or five gelatine capsules of which one may be swallowed every five minutes with the aid of a cup of coffee. A dose of castor oil with brandy should follow the capsules in the course of half an hour.

4. Kousso, koussin, pumpkin seeds, santonin, kamala, carbolic acid, zinc, and other parasiticides of less value.

Every attempt at treatment being a forcible intervention, only such individuals should be subjected to it as are known to be affected. The mere statement of a patient is not sufficient proof, and cases of tæniaphobia do not justify it, on so-called psychological grounds, because failures only aggravate the condition as a rule. Pregnancy, advanced age, debility from any cause are contraindications to all treatment. The physician must be awake to cases of deception. Heller reports the case of a child finally debilitated by repeated treatment because of the continued exhibition of segments of the worm, when, upon closer examination, it was discovered that the fragments did not come from the child at all, but from a lazy nurse who made a convenience of the child's stool chair.

Echinococcus cysts are not amenable to relief by internal medication. If further evidence than the failure of every kind of drug were necessary to prove this fact it may be found in the statement of Leidy, who discovered in the body of an English sailor, sent to him for dissection, the tissues having been thoroughly bleached by an injection of zinc chloride several days after death, a hydatid tumor of the size of the fist in the right iliac region full of daughter cysts, containing still living scolices. The most approved method of treatment of hytatid tumors is by aspiration of their contents. Murchison reported, of forty-six cases thus treated, thirty-five successful results. In ten cases subsequent suppuration necessitated incision, whereby eight cases recovered, and two died. The remaining case died of acute peritonitis in twenty-four hours. Fogg, Hilton, Durham, and Handfield report nine cases cured by electrolysis. Jonasen, of Iceland, still adheres to opening by the caustic method of Récamier. The rare form of degeneration known as the multilocular cyst is always fatal.

ORIGINAL ARTICLES.

SUBCUTANEOUS DIVISION OF URETHRAL STRICTURE.[1]

By C. H. MASTIN, M.D.,
of Mobile, Alabama.

(Concluded from page 287.)

The healing and suppuration of an open wound being long and tedious, and consequently exposing a patient to the risks of pyæmia, whilst structures having no connection with the existence of the stricture are unnecessarily divided, naturally induced the profession to seek other and less formidable measures of relief. These facts led Mr. Henry Dick, of London, in the year 1853, to publish, in the *Medical Times and Gazette*, a critique upon the operation of Mr. Syme, and at the same time to lay before the profession a description of a new operation, which he termed "The Subcutaneous Division of Stricture." Subsequently he presented, in 1855, a memoir to the Academy of Medicine of France upon the same subject, and therein gave the histories of several successful operations which he had performed. After this the operation was then adopted by Mr. William Allingham, and also by Mr. William Adams, both of whom made favorable reports of successful operations.

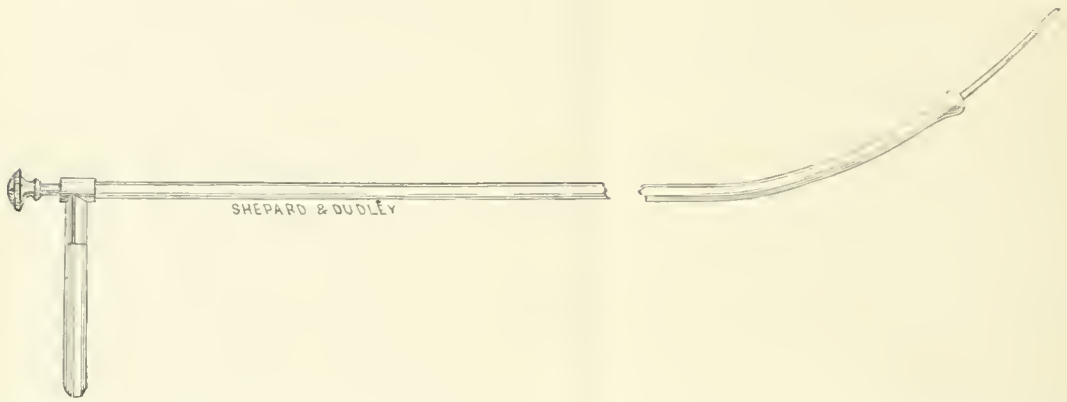
I will now briefly describe the method of Mr. Dick, and then close this paper with an illustration of an operation which I devised in 1868, and which,

[1] Read before the American Surgical Association, May, 1886.

to the present time, I have seen no valid cause to discard.

His method consists in first dilating the stricture sufficiently to admit the director of his catheter, which is a medium-sized catheter of moderate curve, upon the end of which are two buttons or knobs having a groove between them, which groove is continued on, into, and along the director; the catheter contains the small grooved director which can be drawn in or pushed out, so as to traverse the stricture (Fig. 8).

Fig. 8.



The operation is done in the following manner: The catheter, with the director concealed within it, is passed down the urethra until its point reaches the anterior face of the stricture, when, by a gentle manipulation, the point of the director is made to engage the stricture, and is then passed on until it enters the bladder; the surgeon then takes a very small sharp-pointed tenotome (Fig. 9), and, feeling in the perineum with the index finger of his left hand for the buttons or knobs, plunges the knife between them into the groove and along the director through the stricture, being at the same time careful to see, or rather to feel, that the stricture is freely cut throughout its entire length, the edge of the tenotome being directed downward. After the stricture has been freely incised, the director is withdrawn into the catheter, which is now removed from the urethra, and a full-sized catheter passed into the bladder to ascertain whether the urethra has been fully cleared, and also to empty the bladder of any urine which may be present. The little wound is covered by a bit of adhesive plaster, a compress with a T-bandage completes the dressing. No retained catheter is left in the urethra, but whenever there are calls to urinate, the water is drawn off with either a silver or soft catheter. This is certainly a very unique and ingenious operation, and one which strikes at the chief point of objection to all external operations done in the old way, viz., an open wound in the perineum which, in most cases, must heal by the slow process of granulation. Still there are objections to Mr. Dick's operation which will necessarily prevent its coming into general use. In the first place, it is difficult to perform, and requires a degree of dexterity which does not belong to the profession at large; then we have no absolute proof that the director has traversed the stricture, for it may have penetrated a false route, and the incision made subcutaneously, in that event, might be productive of serious consequences. Then, again, he holds as a necessity that *the stricture must, to a small extent, first be dilated*: this is required before his conductor can be introduced. Now, if it is possible to dilate the stricture sufficiently large to admit his director, I hold, upon the same grounds of objection to the operation of Mr. Syme, that there is no necessity for an external operation, for the reason that, if a director can be passed, it is possible to dilate, or, this failing, then to do the safer operation of internal urethrotomy.

Fig. 9.

Mr. W. F. Teevan, of London, has proposed and executed a modification of the operation of Mr. Dick, having the same end in view, viz., to do away with a large external incision, and substitute in its place a small opening through which he practised a subcutaneous urethrotomy. The method employed was simply one in which a small whalebone guide was worked through the stricture, and over this a small conducting catheter was in its turn introduced into the bladder; then along its groove the tenotome of Mr. Dick carried through the contraction, and the after-treatment conducted as in the operation of Mr. Dick. I am not informed of the success which has attended this procedure of Mr. Teevan; but if permitted to judge of the operation from the instruments which he used (Fig. 10), I am not very favorably impressed with it.

I now desire to describe briefly an operation which I have employed since the year 1868, whenever an occasion has demanded an external section. Thus far it has proved entirely satisfactory to me, and especially so to those upon whom I have had an occasion to perform it.

In the year 1872 I wrote a paper upon the result of my operations by this method, and since that date to the present, with an increased experience, I have seen no reasons to alter the views which were then expressed. I now claim nothing of originality for the operation, since it is based almost entirely upon the old *le boutonnière:* the incision being very small, and made anterior to the stricture; then, a very small probe-pointed director, or whalebone guide is passed along through the stricture, and a delicate tenotome incises its upper wall subcutaneously; the small wound in the integuments is closed by pin sutures, and left to heal by primary union. Adhering to the maxim, "dilate where you can, cut where you cannot," I only resort to this operation in those cases where no catheter or guide can be made to traverse the urethra from the meatus to the bladder; cases which require some operation for the immediate evacuation of retained urine, and in which it is not possible for me to perform an internal urethrotomy.

The patient, duly prepared by opening the bowels freely with an enema, and a hot hip bath to tranquillize the nervous system, is placed upon a table, then secured in the ordinary position for cystotomy, and anæsthetized. I now pass down the urethra the tube of Benique (Fig. 11), which is a plain silver tube open at both ends, about nine millimetres in diameter, and from six to eight inches in length; this tube protects the walls of the urethra, and puts on the stretch the face of the stricture. The tube is now filled with a bundle of small filiform whalebone probes which are carefully passed down to the stricture; by trying first one and then another it is possible that one may engage the opening and pass on into the stricture. This being accomplished, I remove the disengaged probes together with the tube, and after securing the probe in the bladder, I pass over it a Wheelhouse staff which has been drilled through its end to answer the purpose of a Gouley staff, and carry it down to the stricture; it is now handed to the assistant, who holds it lightly, yet firmly, against the coarctation, whilst I open the urethra in the groove of the staff, making an incision about half an inch in length. I then draw outward the staff just sufficiently to enable me to find the whalebone probe as it passes through its end and on into the stricture; this I secure by passing a small blunt hook behind it, after which the staff is removed entirely from the urethra, and the distal end of the probe drawn out through the little wound which has been made; and now, over the probe I pass a little gorgeret (Fig. 12); this has its blade directed upward, and being run along the probe, as its guide, it passes through the opening into the

FIG. 10.

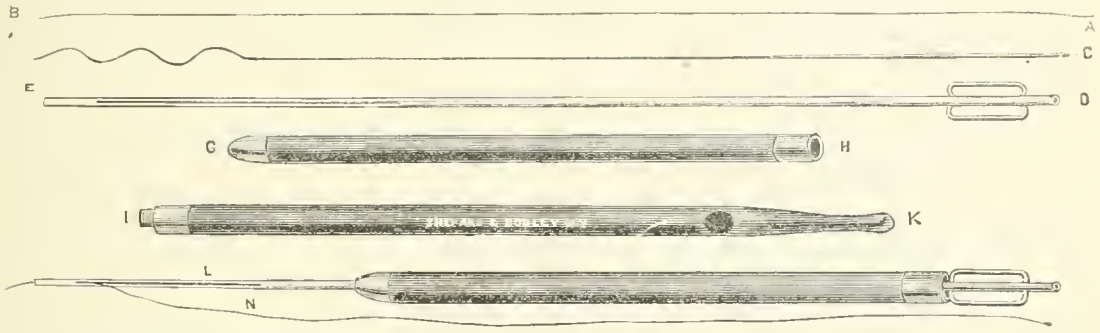


FIG. 11.

FIG. 12.

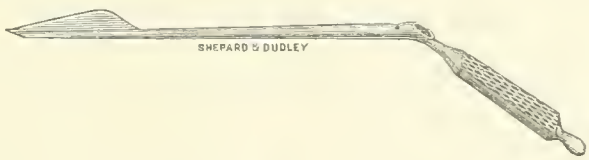
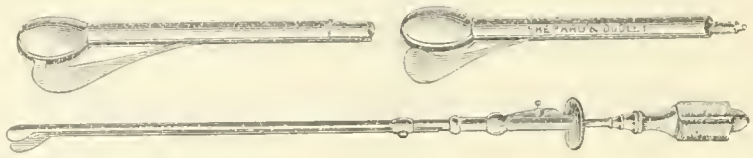


FIG. 13.

urethra, and then down the stricture, which is cut on its superior face. A catheter is now passed along the entire urethra into the bladder and the urine evacuated, after which I carefully examine the site of the stricture with graduated metallic ball probes (Fig. 13) for the purpose of detecting any bands which, perchance, may remain: if found, they are divided by the retrograde urethrotome of Civiale (Fig. 14), and the full calibre of the urethra restored.

thread in the form of the figure 8; then the sound is removed, and its place occupied by a full-sized catheter passed down to the prostatic urethra, but not into the bladder. The patient is put in bed and kept on his side, with instructions to push the catheter into the bladder when he has a call to urinate, and always, so soon as the urine has been discharged, to withdraw the catheter sufficiently far to get it out of the bladder, but not beyond the

Fig. 14.



In the event, however, that it is not found possible to pass a whalebone probe in the first instance, so as to gain command of the stricture before opening the urethra, I then pass either the staff of Wheelhouse, Gouley, or an ordinary staff of slight curve with deep groove, down to the face of the stricture and practise the Leeds operation, with the exception that I do not rip open the whole stricture, but having gotten the whalebone probe through the coarctation, I thread over it the little gorgeret and incise it on its superior face, just as described in the instance where the probe was passed along the tube of Benique, always taking care to sever any and all bands which may remain. This opening simply serves the purpose of shortening the canal and bringing us nearer the obstruction; it furnishes us a passage of only some few lines in length in which to manipulate our instruments, in place of a canal of several inches in extent, as would be the case if the urethra had not been opened. I thus, virtually, perform an internal section; I do not rip open the whole coarctated canal and lay bare to the external wound the cavity of the urethra, but I leave it, so far as the stricture is in question, just in the same condition as an urethra upon which I had done an internal urethrotomy.

In the absence of the little gorgeret, I have found a very narrow-bladed urethrotome of Maissonneuve, conducted by a small filiform bougie passed through the external opening and coiled within the bladder, to serve a most excellent purpose, provided the staff is grooved on its concavity, so as to insure the incision being made upon the roof of the urethra. Such, in brief, is the method I have adopted of operating *externally*, and find that it is easy of execution, and satisfactory in its results.

Having carefully divided any existing bands, and restored the lumen of the urethra, I then pass a sound into the urethra, and, after the slight oozing of blood has ceased, I wash the parts thoroughly with cold water, to which may be added either a chlorine or weak mercury solution for the purpose of cleansing and disinfecting the wound; now I close the wound accurately with two or three pin sutures, passed deep enough to engage the divided edges of the urethral canal, and, after coaptating the edges of the skin, I encircle the pins with a flat stricture. This catheter is used for only twenty-four to thirty-six hours, just long enough to insure the protection of the wound from the passage of the urine until it has been in a measure glazed over, and the strictured portion softened up by the presence of the inlying catheter. On general principles I am opposed to the *sonde à demeure* or retained catheter, and for obvious reasons too patent to need mentioning here; but the sound or catheter, used as I suggest, answers all the purposes for which it is intended, and keeps the urine from the wound until it is sufficiently protected by a glaze which prevents the urine passing into the external incision. At the expiration of this time the catheter is dispensed with and the patient left to pass his urine at will. About the fourth or, at latest, the sixth day, I remove the pins, and do nothing more to the wound save keep up the dressing of lead-water and opium—which is applied immediately after the operation—for two or three days longer. Now the patient is permitted to get up and stir about, and within eight to ten days he resumes his former vocations. The after-attention is such as is usual in all operations for stricture, whether they be external or internal, viz., the systematic use of gradually increasing steel sounds until the maximum calibre attainable in the special urethra has been reached.

With this course judiciously pursued, I find that I am able to discharge my patients perfectly healed within from eight to twelve days; and in not a single instance, out of some twenty-five to thirty operations, have I had any hemorrhage or the annoying complication of urinary fistulæ to contend with.

The advantages to be derived from this operation are, the short time of confinement for the patient, freedom from hemorrhage, quick union by primary adhesion, and the small amount of resultant cicatricial tissue, which is always deposited in greater proportion the longer the healing process continues. The retained catheter for the first day or two does good rather than harm, since it protects the fresh incision from the toxic effects of the urine until it has become glazed over with lymph, and acts, at the onset, by pressure upon the divided stricture, compressing the vessels which have been divided and which might bleed after reaction; it also sustains the

urethra as a splint, and prevents the stricture from reuniting until we have time to begin gradual and systematic dilatation with the steel sound. The comparative immunity from urethral fever which my patients have enjoyed after this operation, I feel certain, is due almost entirely to the use of the inlying catheter as I employ it. I do not desire to be understood that I advocate the use of a retained catheter throughout the entire confinement of the patient to bed, but that I use it only for the first twenty-four to thirty-six hours—just sufficiently long to permit the wound to glaze over with lymph, and model, as it were, the granulations by gentle pressure.

In examining the details of the last ten operations which I have done by this method—all of them bad cases—I find that they were enabled to get out and be around the city in the following order: 3 on the fourth day after the operation, 1 on the fifth day, 2 on the sixth, 2 on the seventh, 1 on the ninth, and 1 on the twelfth. The others recovered in about the same proportions.

I am not apprised if any other method of performing external urethrotomy has afforded like rapid results.

ADDITIONAL CASES OF THE SÄNGER CÆSAREAN OPERATION.

Reported by ROBERT P. HARRIS, A.M., M.D.,
OF PHILADELPHIA.

IN THE MEDICAL NEWS of July 17th, I presented a tabular record of 28 Sänger operations, of which 23 were performed in Continental Europe, and 21 of these in Germany. Mainly through the kindness of Dr. Sänger and other correspondents, I have received, in two months, an addition of 10 cases, making 38 in all, of which 33 are European, and 14 belong to the current year. Of these 14, 12 were saved, and probably all of the children, but certainly 13, the fate of 1 not having been mentioned.

The 33 European operations saved 26 women and 31 children, a record much more promising than that by the Porro method. It must be very gratifying to my friend Dr. Sänger to feel that he has been the originator of this life-saving improvement, and to find such noted gynecologists as Profs. Breisky, of Prague, Chiara, of Florence, and Ottavio Morisani, of Naples, making trial of it.

In my former record the cases of Drs. Prochownick, of Hamburg, June 27, 1884, Veit, of Bonn, June 25, 1885, and December 21, 1885, Schauta, of Innsbruck (his second), Dec. 28, 1885, and Prof. Breisky, of Prague, were omitted from their respective places. Dr. Prochownick's patient was a primipara of thirty-eight, having a deformed pelvis, with a conjugata vera of 3⅛ inches, and was in labor forty-four hours; he saved both mother and child. Dr. Schauta's patient was a primipara of twenty-five, and in labor twenty-eight hours; she and her child were likewise saved. Prof. Breisky operated, Feb. 4, 1886, upon a 3-para of twenty-eight, who had been in labor three days. The cause of obstruction was a cystic tumor strongly attached to its surroundings, and in the Douglas cul-de-sac. Septic infection was produced by the cyst contents, and the woman died the next day; the child was saved.

Dr. Leopold operated for the tenth time, in June, 1886, the patient having pelvic contraction, and saved both mother and child. This gives him a loss of one woman in ten, or, for his hospital, a saving of 10 women and 11 children from 11 operations.

Prof. Domenico Chiara, of Florence, operated on June 29, 1886, upon a primipara of twenty-one, having a rachitic pelvis, conjugata vera 2¾ inches. The woman was sufficiently recovered to leave her bed for a few minutes on the tenth day; the fœtus was saved.

Prof. Morisani operated upon July 2, 1886, and thought his the first Sänger case in Italy, but was three days too late. He unfortunately lost his patient in thirty hours, from what cause his letter does not state, neither does he mention the fate of the child. An autopsy showed that both the serous and muscular edges of the uterine wound had united. He expressed himself as very much pleased with the prospective value of the improvement, in its application to Cæsarean cases, as a means of lessening their danger.

Dr. Paul Bar, of Paris, operated last month (July), in a case of sarcoma of the pelvis, and saved both mother and child. This was the second operation in France. The record now stands as follows:

Countries.	No. of cases.	Women saved.	Women lost.	Child'n saved.	Child'n lost.	Percentage of women saved.
Germany	25	21	4	24	1	84
United States	5	0	5	2	3	0
Austria	4	2	2	4	0	50
Italy	2	1	1	1	?	50
France	2	2	0	2	0	100
Total	38	26	13	33	4	

Percentage of women saved in all countries, $68\frac{5}{19}$
Percentage of women saved in Europe alone, 78

It will be seen that our position is not at all creditable to us as a nation. Standing second in point of numbers, we are least in respect to success, both in the proportion of women, and of children saved. Under an improved system of operating, we are retrograding instead of advancing, and are being left far behind by the Cæsarean operators of countries which, up to twenty-five years ago, had a much higher rate of mortality than existed in the United States. As I have often contended, there is a decided connection between the prior death or destruction of the fœtus and the subsequent loss of the mother; and here we find there has been no exception. To do better in the future, we must bear in mind the importance of making the operation one of choice, and not one of compulsion, after every other expedient has been tried. In a case of pelvic obstruction, first carefully determine the working space; do this early in the labor, and then operate, if the space measures so small that in all probability the Cæsarean section will at the last be a necessity of delivery.

September 11, 1886.

ON THE CAUSES OF DYSPNŒA AND CARDIAC FAILURE IN HIGH ALTITUDES.

By FRANK DONALDSON, Jr., B.A., M.D.,

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In the course of some experiments during the past winter, upon the physiological effects of rarefied and compressed air, and reported to the American Climatological Association in May,[1] I was often struck with the fact that sudden and considerable rarefaction of the air produced not only extreme dyspnœa but also a rapid, irregular, and intermittent pulse in the animals experimented upon.

The apparatus used by Prof. Martin and myself was the pneumatic cabinet, at present so much employed for the application of rarefied and compressed air to respiratory diseases, and which is used somewhat indiscriminately, without proper regard to the possible dan. er of subjecting patients with cardiac disease to treatment by this method. The animals, be it said, were placed in the cabinet in the same manner and subjected to the same changes of pressure as are patients.

In our experiments it was found that:

I. When the animal is breathing air from outside the cabinet, rarefaction of air within the cabinet *causes a marked fall of general arterial pressure*, but has no influence on the pulse-rate.

II. This fall of systemic arterial pressure depends on two factors: greater flow of blood to the skin when the air around the animal is rarefied, and greater accumulation of blood in the lungs when they are distended.

III. Of these two factors, accumulation of blood in the lungs is the more effective; for, if the animal breathes air from the cabinet and not from outside, rarefaction of air within the cabinet (in this case accompanied by no special expansion of the thorax) has but a trivial effect in lowering arterial pressure, unless the rarefaction is very considerable—about what would correspond to three or four thousand feet—when the fall of pressure was more marked.

IV. When the animal is breathing external air, rarefaction of air within the cabinet usually has no effect upon the respiratory rate or the extent of individual respiratory acts, unless the fall of blood-pressure is considerable. *If it is considerable, symptoms of anæmia of the medulla oblongata are seen. In most cases there is more forcible dyspnœic breathing; in some there are dyspnœic convulsions similar to those which occur when an animal is bled to death*, and due to the same cause, viz., deficient blood-flow to the respiratory centre.

So convinced was the writer from these facts, of the danger of this method of treatment that he was led to lay down the following rule, and upon which special stress was laid, viz., before deciding a person to be a proper subject for treatment by pneumatic differentiation, *thorough examination* should be made of the *heart; and that no person found to have insufficiency or stenosis of the mitral or aortic valve, or the slightest tricuspid regurgitation, or a fatty or weak heart, should, under any condition, be subjected to treatment by rarefied and compressed air.*

I was not aware that this point had been emphasized before as to the danger in heart disease of the rarefied and compressed air treatment by this method, and was therefore much interested in Dr. Loomis's paper read before the same Society and just preceding my own. In this article, entitled "The effects of high altitudes on cardiac disease,"[1] Dr. Loomis gives the history of six cases of cardiac failure directly due to removal to high altitudes. He has records, however, of twenty-two. The extreme importance and novelty of these cases entirely justify the insertion here of two.

Case I.—"In the summer of 1880, during my vacation at St. Regis Lake, in the Adirondack Mountains, I was requested to visit a gentleman who had just arrived from New York and was thought to be dying. I found a gentleman, forty years of age, sitting at an open window, gasping for breath, and deeply cyanosed. No distinct radial pulse could be detected, his extremities were cold, and his body was covered with a profuse perspiration; he was semi-conscious, unable to speak or swallow, and seemed to be dying. Neither heart-sound could be distinctly heard. After the hypodermatic administration of ten minims each of tinct. digitalis and Magendie's solution of morphia, with the free use of hypodermatics of brandy, he rapidly recovered from his extreme condition, and in a few hours was comparatively comfortable, but unable to lie down, and was only partially relieved of his dyspnœa, the radial pulse continuing rapid, feeble, irregular, and intermitting. The next morning I obtained the following history:

"Three days before, Mr. C. had left New York City, feeling well, although for two or three months before he had noticed that he became easily fatigued, had dyspeptic symptoms, lost flesh, and spent restless nights. When he reached Plattsburg the evening before (the altitude of which is 150 feet above sea-level) he felt better than when he left New York, slept unusually well during the night, and started at eight in the morning for St. Regis Lake. When he reached an altitude of about 1000 feet his breathing became difficult, and, as he reached higher altitudes, the difficulty increased, and was accompanied by cardiac palpitation and a sense of oppression in the epigastrium. The dyspnœa and oppression became so urgent before he reached St. Regis (the altitude of which is about 2000 feet) that his friends had to support him, and, when taken from the carriage on his arrival, he was thought to be dying. A careful physical examination twenty-four hours after showed a diffused, indistinct cardiac impulse; the area of præcordial dulness was greatly increased both to the right and left. The first sound of the heart could not be made out; its time was occupied by a loud systolic murmur. The pulse was rapid, feeble, irregular in force, and at times intermittent; fine râles were heard at the base of both lungs. One examination of his urine gave negative results. After treating him for three days, with little apparent improvement in his cardiac symptoms, I advised that he should be taken to a lower altitude.

"When he reached Plattsburg on his return his dyspnœa was markedly relieved; when he reached his country home on the Hudson he had so far improved that he was able to walk on a level, and to lie down with his head and shoulders slightly elevated, although

[1] Preliminary Account of Experiments in regard to the Circulatory and Respiratory Changes observed in Animals placed in the Pneumatic Cabinet, by H. N. Martin and Frank Donaldson, Jr., New York Medical Journal, May 15, 1886.

[1] New York Med. Journal, June 12, 1886.

his dyspnœa, epigastric oppression, and irregular heart-action continued; his feet soon became œdematous, and six weeks later he died with general anasarca and heart insufficiency. No post-mortem examination was made. His family physician told me, some time after, *that he had never detected signs of cardiac disease until his return from the mountains, although he carefully examined his heart two weeks before he started on his summer trip.*"

CASE II.—"Mr. M., aged fifty-two, with recognized aortic insufficiency, which had never given him serious trouble (*in fact, he was not aware that he had cardiac disease*), on the 10th of August, 1882, started with his family on a pleasure trip through the Adirondacks. When he reached an altitude of about 1000 feet he began to suffer with dyspnœa and cardiac palpitation; when he reached St. Regis Lake he was markedly cyanosed, his respiration was gasping in character, and his pulse could not be counted. His apex impulse was diffused and indistinct, and he was having quite profuse pulmonary hemorrhage. I ordered a calomel purge, and ten drops of tinct. digitalis every three hours, which was followed by marked relief within twenty-four hours, although his dyspnœa and cardiac symptoms were not sufficiently relieved to allow him to lie down. A physical examination showed extensive cardiac enlargement, a diffused and indistinct apex beat, a feeble and irregular heart-action, an absence of the muscular element of the first sound, but no murmur could be detected. The urine contained albumen, but no casts; crepitating râles were heard over the base of both lungs. I advised that he return immediately to his home in Brooklyn, which he reached, the third day after, very much improved. His dyspnœa was so much relieved that he was able to lie down; his feet and legs soon became œdematous, general anasarca followed, and in two months he died suddenly. No autopsy was made, and I could get no intelligent account of the immediate cause of his death."

Dr. Loomis then goes on to say,

"In these cases which I have quoted, as well as similar ones which have come under my observation, *the ventricular dilatation*, which was unquestionably the cause of the sudden development of the distressing symptoms, and from which dated the commencement of the fatal issue, seemed to be directly due to the effects, on the *cardiac circulation, of the change from a low to a high altitude.* I do not maintain that sudden cardiac dilatation might not have developed in any one of these cases under other conditions, but I do maintain that change in atmospheric pressure is a very important cause of sudden ventricular dilatation when any degree of heart insufficiency preëxists."

Finally, he declares that only with danger can a person whose heart is weak, fatty, or diseased, pass rapidly from a low to a high altitude, and, indeed, I gathered from his subsequent remarks that a person with cardiac disease should under no circumstances be sent to high altitudes.

Dr. Loomis then, had arrived at the same conclusion from clinical experience as the author had experimentally, and it seems that we may rest assured that there is great danger for the diseased heart either in high altitudes or in any form of treatment by rarefied and compressed air. This fact being established, our purpose is to inquire into the cause of dyspnœa and cardiac failure under these conditions.

To do this it will be necessary, first, to give the latest accepted explanation of the circulatory changes which take place in ordinary quiet respiration of air at normal pressure—750 millimetres of mercury—and then to see how high altitudes may affect these normal respiratory and circulatory phenomena.

It is very generally stated that the cause of dyspnœa and shortness of breath in high altitudes is the want of oxygen; that the system needing oxygen, more blood has to be sent through the lungs in a given time, thus increasing the amount of work to be done by the heart, which often dilates under the sudden strain. Such explanation, though applicable for very high altitudes, is at the same time based on a misconception.

1st. The partial pressure of oxygen at normal atmospheric pressure is equal to 152 millimetres of mercury.

2d. So long as the partial pressure of this gas remains above 25 millimetres of mercury (one inch) the amount taken up by the blood will depend upon the amount of hæmoglobin in that liquid, and not on how much oxygen there is in the air.[1]

3d. The partial pressure of oxygen even at so great a height as 10,000 feet would be 101 millimetres of mercury, at which the hæmoglobin could get all the oxygen necessary.

But it may be urged, Paul Bert found an increased amount of hæmoglobin in the blood of animals in high altitudes, which would show a necessity on the part of nature for more oxygen. True, but this change takes place only after a very long time, probably not in one generation. Again, it may be objected that in many of those very cases sent to high altitudes the blood is poor in hæmoglobin. Doubtless this is true, but it is not the sick only, by any means, who suffer from dyspnœa and cardiac failure in high altitudes.

It is not necessary in this article to go into the various theories of the aspiration of the thorax, advanced by Poiseuille, Quincke and Pfeiffer, Funke and Latschenberger, Bowditch and Garland, Mosso, Hegel and Spehl, and others. I shall refer only to the work of de Jager, whose explanation of the respiratory phenomena has, on the whole, the greatest experimental proof to support it.[2]

As to the influence of the normal respiratory movement upon the circulation. In any given inspiration the chest cavity is enlarged, negative pressure is created in the thorax; not only the lungs, but the right side of the heart and the intrathoracic portions of the systemic veins, are expanded in consequence, and the blood is drawn toward the great veins and right side of the heart. Such being the general effect of negative intrathoracic pressure, what is its effect upon the blood-flow through the lungs, upon the intrathoracic vessels, and finally upon the systemic circulation?

De Jager holds that though the negative pressure is exerted equally on the pulmonary artery and vein, the effect upon the blood in each is very different,

[1] Martin, Human Body, p. 384, 1st edition.

[2] For the *résumé* of the work of de Jager, with a critical examination of his theory, I am greatly indebted to my friend, Dr. W. H. Howell, of Johns Hopkins University, who kindly allowed me to make use of his lectures on the aspiration of the thorax.

for the walls of the pulmonary artery are much thicker than those of the pulmonary vein, and any want of pressure would be transmitted through them upon the blood much less readily. Again, the walls of the pulmonary artery are normally distended by a pressure of from 30–40 millimetres of mercury, and so the slight increase of negative pressure occurring during inspiration would probably have little or no effect in distending the pulmonary artery. On the other hand, the blood in the pulmonary vein is under little, if any, positive pressure, and so diminution of pressure would distend its walls considerably. De Jager, therefore, holds that we would have the normal conditions during life more nearly represented if, in an artificial thorax, the pulmonary vein should be exposed to the same negative pressure as that expanding the lungs, while the pulmonary artery was left under a constant pressure of one atmosphere, for instance.

Experimenting in this way, he found that the stream velocity (the amount flowing from the pulmonary vein in fifteen seconds) is markedly greater during *expansion* than during *collapse;* the effect then of normal inspiration, on the whole, is to increase the quantity of blood flowing through the lungs, probably by increasing their capacity, and thus diminishing the resistance to the flow. De Jager, in his second paper, gives the final opinion that "the respiratory waves in the blood pressure in the dog in normal quiet respiration are caused by changes in lung circulation. The first sinking of pressure at the beginning of inspiration is a capacity curve—*i.e.*, due to increased capacity of the lung vessels; the following rise, a stream velocity curve"—*i.e.*, caused by an increased flow through the lungs. In a like way, the rise at the beginning of expiration is a capacity curve—*i.e.*, owing to a diminished capacity; the succeeding fall, a stream velocity curve, due to diminished flow through the lungs.

The influence of respiration upon the heart and great vessels. The first effect of the negative pressure of inspiration is a diminution of pressure on the heart and intrathoracic vessels, and a consequent *sucking* of blood into the right side of the heart, which in turn is sent through the increased area of the lung vessels to the left heart, and thence to the systemic circulation, causing a rise of pressure. Another important element in the respiratory waves of blood pressure is the change which takes place in intra-abdominal pressure in inspiration. Luciani and Schweinberg maintain that the descent of the diaphragm causes increased abdominal pressure, which assists the rise in arterial pressure, 1st, by driving the blood out of the abdominal veins toward the heart; 2d, by compressing the abdominal arteries (a questionable supposition). Another cause of increased pressure during inspiration is the increase of heart rhythm, due, according to Fredericque (*Archives de Biologie*, 1882), to a rhythmic automatic discharge from the cardio-inhibitory centre—the discharge depending in some way on the rhythmic discharge from the neighboring respiratory centre.

The effects, then, of the negative pressure following inspiration, are an increased blood-flow to the large intrathoracic veins, and to the right heart; an increased heart capacity, especially of the right side; an increase in intra-abdominal pressure, forcing onward the blood; an increase of capacity in the pulmonary veins; an increased blood-flow through the lungs and to the left heart; an acceleration of the heart rhythm, and, finally, increase of systemic arterial pressure.

Such, in brief, is the theory of the circulatory changes which take place in ordinary respiration. It remains for us to inquire how the cycle may be affected in high altitudes.

However much the phenomena of normal quiet respiration may be changed in a highly rarefied atmosphere, the chief and immediate cause of dyspnœa and cardiac failure, may, I think, be traced to *the diminished pressure on the heart walls and their consequent dilatation.* This fact may be made plain as follows:

The external air presses against the interior of the lungs with a pressure equal to that exerted on the same area by a column of mercury 760 millimetres high, it distends them and pushes them against the inside of the chest walls, the heart, and great blood-vessels and contents of the thorax. The pressure thus exerted is not equal to that of the external air, since some of the total air pressure on the inside of the lungs is used up in overcoming their elasticity (equal to six millimetres of mercury), and it is only the residue, equal to a column of mercury 754 millimetres high, which pushes the lungs against the heart and great vessels. The actual pressure then on the heart walls, normally, is equal to 754 millimetres of mercury.

How is this pressure changed at an altitude, say of 10,000 feet? The total pressure of the air at that altitude would be equal to a column of mercury 501 millimetres high. The pressure, then, upon the lungs and whole body would be lessened. But, as the person is breathing the same air as that around him, the respiratory act would be unchanged. Prof. Martin and the author found that neither the frequency nor depth of the respiratory act were changed in an animal placed in a rarefied atmosphere. There would be (as, again, we found) a slight fall in blood pressure, which would be very temporary, for the circulation being a system of closed tubes, is but little, if any, affected, and the pressure rises at once to the normal, owing to increased vasomotor action. There would be no increase of negative intrathoracic pressure. Finally, the only organ directly affected at moderate altitudes (of course, at very high altitudes, 12,000 to 18,000 feet, the dyspnœa from want of oxygen would be felt), say from 3,000 to 10,000 feet, would be the heart, and for this reason. As we have said, the pressure on the heart usually is equal to 754 millimetres of mercury. At an altitude of 10,000 feet, however, the general pressure being 501 millimetres, the pressure of the heart would be only 495 millimetres of mercury. Now the arterial pressure, and, therefore, the intracardiac pressure would be the same as when the pressure on the heart walls was 754 millimetres. But one result could follow such conditions, and that would be a stretching and dilatation of the heart walls—especially of the right

side—and this is precisely what is found in many of those who go into high altitudes for their health, or for other reasons, and what we found in experiments upon animals. The heart, weak and diseased possibly beforehand, is unable to stand such strain as is put upon its dilated walls, and so we find its contractions weak, intermittent, and irregular—we have the murmurs, the syncope, the dyspnœa, which are often so marked in high altitudes.

Of course, the want of oxygen is a great cause of the dyspnœa in very high altitudes, but we are quite justified, on physiological grounds, in saying that at the altitudes to which persons are ordinarily sent—three, four, six, seven, or even ten thousand feet—the hæmoglobin can take up all the oxygen the system needs.

Finally, then, and speaking purely from an experimental standpoint, I hold that there is danger to the weak and diseased heart, not only in the use of such apparatus as the pneumatic cabinet, but also in high altitudes; in which conclusion I am supported by the clinical experience of Prof. Loomis, and of Dr. Solly, of Colorado Springs.

MEDICAL PROGRESS.

A Chemical Study of Rabic Virus.—Vincent Richards, whose studies of venom are well known, has pointed out in the *The Indian Medical Gazette* of July, 1886, certain analogies between the poisons of snake bite and of rabies. His paper concludes as follows:

Saliva is, as we know, of a mixed character—that is, it is a combination of secretions from the parotid, submaxillary, sublingual, and buccal glands. These secretions differ in their degree of viscidity, and in their chemical composition, and as the flow of saliva from the different glands—especially the parotid and submaxillary—is considerably influenced by circumstances, the mixed saliva must vary from time to time in the proportion of its several constituents.

It contains, amongst other substances, two proteid bodies, viz., globulin and serum-albumen, and it so happens that these are two of the toxic elements in snake-venom; the globulin attacking certain centres of the medulla oblongata, and the albumen producing motor paralysis. Now, bearing in mind this fact and the circumstance that two distinct types of the disease result from the inoculation of rabic virus, is it not possible, nay, very probable, that the distinctive character of the phenomena in each case depends upon, or results from the inoculation of two or more noxious principles differing in proportion one to another, and to the fluid in which they are found? It may possibly be found that virulence of the saliva results merely from an enormous increase in the proportion of these two elements. I do not say that these, what I will call rabic proteids, have an identical physiological action with those of snake-venom proteids. Indeed, in some particulars, they would seem to exercise some unknown antagonistic action on the same nerve-centres. For the purposes of this paper, I suppose that we have at least two toxic elements of a proteid character in the rabic slaver, and I further assume that one is—

Rabic globulin—having an action upon certain centres of the medulla oblongata, especially the respiratory centre with its neighboring convulsive centre, the cardio-inhibitory centre, the centre for reflex excitation of the secretion of the saliva, and the centres for deglutition and vomiting, and destroying the coagulability of the blood.

And the other—

Rabic albumin—having a special action, more particularly on certain centres of the anterior, temporal, and posterior lobes of the cerebrum.

Assuming that these toxic elements may be present in the saliva of the rabid animal in varying proportions—sometimes one and sometimes the other preponderating—the peculiarities of the disease—hydrophobia—are accounted for. Though it is true that my contention is mainly hypothetical, still it has the merit of affording the best solution of an otherwise perplexing and insoluble problem, as to how the inoculation of the rabic virus can be the cause of two distinct series of physiological phenomena. Whether it is as true as it is plausible remains to be proved. In the meantime, I commend my views to the consideration of those experts in physiological chemistry who may have the necessary opportunity of submitting them to experimental test.

Treatment of Pruritus.—A solution of menthol, two to ten grains in the ounce, is said to be a very effectual remedy in the treatment of the troublesome itching which accompanies urticaria, eczema, and pruritus.—*British Medical Journal*, August 28, 1886.

Intraperitoneal Injections in Acute Hemorrhage.—Rütgers records the case of a woman who, as a result of post-partum hemorrhage, was in a state of profound collapse, and whose veins, after ligature, did not swell, so that no indication for the site of an intravenous injection was obtainable.

A solution of sodium chloride 90 grains, sodium hydrate 5 grains, and distilled water 34 fluidounces, was accordingly introduced into the abdominal cavity by means of a trocar. After three days, during which abdominal pain and subnormal temperature obtained, the general condition was excellent.

It is evident, from this experience, that the absence of swelling in veins after ligature is no sure sign of actual death, and it is suggested that the method described may replace that of hypodermatic injection of water in Asiatic cholera.—*Centralb. f. d. med. Wiss.*, Aug. 7, 1886.

The Treatment of Arterio-venous Aneurism.—A long paper on arterio-venous aneurism communicated by Dr. F. Bramann, of Berlin, to the Fourteenth Congress of the German Society of Surgery, concludes with a comparison of the results of different methods of treatment. The tables of 159 cases collected from different sources show, the author states, that digital compression and other bloodless methods, though occasionally successful in the treatment of arterio-venous aneurism, have not been attended, on the whole, with satisfactory results. Digital compression is very uncertain in its effects, and, to be practised with any chance of success, demands much patience and endurance on the part of both patient and surgeon. It must, therefore, stand below operative methods, by which it is far surpassed with regard both to certainty and

rapidity of the curative results. As a preparatory and auxiliary means of treatment, however, digital compression cannot be too highly recommended; since by it the collateral circulation may be established, and serious circulatory disturbances on the subsequent application of the ligature be thus prevented. Reference is made to cases in which, after a first compression of the carotid artery, lasting one or two minutes, had caused vertigo and syncope, the tendency to such attacks was gradually removed by frequent repetition of the treatment, and consequent dilatation of the collateral channels.

In the operative treatment of arterio-venous aneurism, Hunter's operation is to be rejected. The most promising method is ligature of the vessels above and below the lesion with total or partial extirpation, or, in some cases, with simple division of the sac. It is necessary in most cases to lay open the sac, in order that the opening of any lateral branch in the region of the vascular communication and between the ligatures may not be overlooked. In every case of recent wound of a large artery with its vein, in which the nature of the injury is manifested by free bleeding, a characteristic murmur, and alterations of the pulse, the vessels should be tied at once above and below the seat of injury and divided between the ligatures, and at the same time the wounded portions of artery and vein should be cut away. In cases in which the wound has healed and an arterio-venous aneurism been fully developed, an attempt may be made, though not for long, to treat the lesion by continuous or intermittent digital compression. If this fail, ligature of the vessels above and below the seat of injury is to be recommended, together with complete extirpation of the sac when this is small and circumscribed, and either partial extirpation or simple incision, followed by plugging, in case of a very large sac or of one with ill-defined wall.

The only contraindication of operative treatment is extreme general disease of the vessels, especially advanced arterial sclerosis. Long duration of the aneurism does not in itself contraindicate such treatment. A case has been recorded of successful treatment by operation of an arterio-venous aneurism in front of the elbow, that had lasted for twenty-five years, and another of a like aneurism of the femoral of twelve years' standing. With regard to the dilatation of the veins in the affected limb, this always diminishes considerably in size after the operation, and may even disappear altogether. Occasionally, however, after the patient has recovered and taken to active muscular exercise, circulation is reëstablished in these veins, and dilatation is again observed. This venous dilatation, however, Dr. Bramann states, does not attain so high a degree as to interfere with the functional activity of the limb.—*London Medical Record*, July 15, 1886.

Treatment of Hydrophobia in Poland.—A Polish physician, Prince Ignace Jagell, has been occupied since 1858 in the study of hydrophobia, and in a recent letter to the French Academy combats the methods and conclusions of Pasteur. Prince Jagell states that he has treated, in the course of his life, eighty-eight individuals bitten by mad dogs and wolves, and that all were cured by the internal administration of an infusion of the bark of the *Spiræa filipendula*. Twenty-eight of the patients were already in the first period of hydrophobia when the treatment was begun.

Several German journals have commended the same drug as a prophylactic in the disorder under consideration.—*Rev. de Thérapeutique*, August 15, 1886.

Refractive Character of the Eyes of Mammalia.—In the course of an elaborate article with this title in *The Royal London Ophthalmic Hospital Reports* for July, 1886, Drs. Lang and Barrett write as follows:

"The usual form of an astigmatic eye—a vertically flattened sphere—is the shape that a soft ill-supported sphere would assume by reason of its own weight. When such a sphere is acted upon by four muscles vertically and by only two horizontally, leaving aside any influence the lids may exert, it is readily conceivable that a weakly formed sclerotic and cornea should assume the astigmatic shape. Once formed, this shape would have a tendency to be inherited, especially in domestic animals, amongst whom the law of the survival of the fittest does not obtain, at least as regards the eyes. In albino rabbits, which do not admit of much crossing, this defect was always marked, the astigmatism in our cases averaging 1.275 D.

"On only one point, however, is the evidence decided and convincing; the principal meridians of the astigmatic eye are always in the direction of and at right angles to the direction of the long axis of the pupil, to this extent only does this evidence justify the consideration of the matter from a teleological standpoint. Were the slit-like pupil developed to obviate the evil results of the astigmatism, we should expect to find that the meridian of least curvature in myopic, and of greatest curvature in hypermetropic eyes, corresponded in direction with the long axis of the pupil. One would also certainly expect that animals with round pupils should not possess very astigmatic eyes. Yet every one of these requirements is unsatisfied, and we find throughout that the optical construction of these eyes evinces the existence of some general developmental agency which pays little regard to the *existing* shape of the pupil.

"We feel that we are quite unable in the present state of our knowledge to conjecture the mode of origin, or even the possible purpose of this slit-like pupil, but we think that the evidence adduced indicates the probability of that explanation being obtained from a developmental and not from a teleological standpoint."

Sudden Death from a Blow on the Testicles.—At a recent meeting of the Varna Medical Society, Dr. Ivanoff recorded the following rare case (Bulgarian *Meditzinsko Spisanïe*, June 20, 1886, p. 440). A man, aged between forty-five and fifty years, fought with a woman on the street. During the fight the woman dealt a violent blow on his genital organs. The man shouted, 'I am dying!' staggered, and fell insensible. The author, who was almost immediately fetched to the spot by a policeman, found the patient lying on his back, motionless, pulseless, and breathless; his face, neck, and scrotum being very red. Not a trace of ecchymosis or any other sign of injury was detected anywhere in the man. Since there seemed to be heard a slight cardiac murmur, and a slight tremor to be felt in the carotids, Dr. Ivanoff without any delay resorted to

artificial respiration. But neither forty-five minutes' manipulations nor electrization could establish the man's breathing. The congested parts soon became livid, and every sign of life extinct. At the *post-mortem* examination, there were found only intense congestion of the meninges and brain, congestion of the lungs with numerous punctiform ecchymoses, accumulation of dark red fluid blood in the cardiac cavities, congestion of the stomach, liver, kidneys, and testicles. Everything else was quite normal. Basing this conclusion on all the facts as sketched above, the author stated (forensically) that death followed from syncope, which had been brought about by sudden violent pain caused by a blow on the testicles.—*London Medical Record*, August 16, 1886.

Researches on Myohæmatin and the Histohæmatins.—Dr. C. A. MacMunn (*Proc. Roy. Soc.*, 1886, 240) has found that the organs and tissues of invertebrate and vertebrate animals, from echinoderms to man, present a series of spectra which are all evidently connected with each other. In general the spectra may be said to consist of three bands—one before D, one or two between D and E, and sometimes one or two others nearer violet. The pigments to which these spectra are due are called histohæmatins, and occur in an oxidized and deoxidized condition. In all animals which possess striped muscle there is to be found in their tissue a yellow or reddish-yellow pigment—myohæmatin—distinguished by the sharpness and narrowness of its bands. Three bands are always present—one between C and D, close to D, which corresponds to the first band of the histohæmatins spectrum; two very narrow and sharp bands between D and E, and one or two nearer violet, not constantly present. Dr. MacMunn concluces that these pigments are concerned in the internal respiration of the tissues and organs in which they are found. Hæmochromogen has been found by the same indefatigable observer in the suprarenal capsules of several animals. This pigment would appear to be here, as in other places—*e. g.*, the bile—excretory. Hence one of the functions of the suprarenal capsules is to cause a downward metamorphosis of hæmoglobin and the histohæmatins. If from disease this metabolism is prevented, the incompletely metabolized pigments circulate in the blood, and staining of the skin and mucous membrane, as in Addison's disease, may take place. Dr. MacMunn has found in the urine of Addison's disease such an imperfect metabolit.—*Dublin Journal of Medical Science*, Sept. 1886.

Potassium Permanganate in Burns and Frost-bite.—In the *Meditzinsko Obozrenïë*, 1886, No. 8, p. 758, Dr. A. A. Züboff writes that, having tried permanganate of potassium in forty-four cases of burns and thirteen cases of frost-bite, he arrived at the following conclusions: 1. Permanganate of potassium, in the shape of frequently changed compresses (linen or hygroscopic cotton-wool soaked in a solution of one or two grains to an ounce of water) is an effective remedy for frost-bite of the first and second degrees. 2. The same lotion acts as successfully in burns of the first degree. 3. It is less successful in burns of the second degree. At all events, the permanganate lotion rapidly relieves inflammation around blisters, and pain, and prevents suppuration when blisters remain intact. In this category of cases, it is advisable to employ a weaker solution (half a grain, or even less, to an ounce). Two cases are given in detail. One of the patients received (when taking a vapor-bath) a scald of the first degree, extending from the breasts to the inguinal folds anteriorly, and between the same levels posteriorly. Pain disappeared within an hour after the application of the permanganate lotion. Soon the epidermis began to peel off. She left, well, in eleven days. Another woman had a similar scald of the face and a hand. She also obtained rapid relief, the treatment lasting a week.—*London Medical Record*, August 16, 1886.

The Treatment of Pericarditis.—Professor Nothnagel, of Vienna, in a clinical lecture on the treatment of pericarditis, advises that in cases where there is pain in the cardiac region, fever, and the commencement of exudation, leeches varying in number from three to ten, according to the gravity of the symptoms and the constitution and strength of the patient, should be applied. The leeches should be renewed every four or six days. Cupping may be substituted, but leeches are preferable. An ice-bag should be applied, or a directing apparatus through which cold water can be constantly supplied to the part. Cold compresses are of no use unless they are laid on ice, and then they must be changed every five minutes. Digitalis for internal use is indicated under certain circumstances. It is useful if the cardiac action is greatly increased, especially if there are signs of the heart muscle becoming implicated, when it should be given in somewhat larger doses. Digitalis is not desirable in the earlier stages of the disease, but in the later ones, when there are signs of weakness of the heart muscle and the pulse is weak, it is indispensable. Other internal remedies are useless. Mercurialization—viz., calomel in small doses of three-quarters of a grain internally, and gray ointment externally—has no effect. The pain is scarcely ever severe, and if it is persistent it may be relieved by cold and bloodletting. To this a high temperature is no drawback, as the fever subsides as the inflammatory appearances disappear. If effusion has begun, other means must be used—such as counter-irritation of the skin and the promotion of reabsorption. Ice and bloodletting are of no use in this case. The cardiac region must be painted with equal parts of gall and iodine tincture, or an ordinary cantharides plaster may be applied, which should be kept on from eight to twelve hours—till a blister is raised. This is of greater use in subacute than in acute pericarditis. Digitalis does not promote reabsorption directly, but indirectly by its influence on the action of the heart. Should the patient's life be threatened by copious effusion, paracentesis of the pericardium must be performed. This operation is often employed, and with not unfavorable results. Great care must be observed; the pointed trocar of Dieulafoy's apparatus must not be used, but a blunt one like that of Dr. Fraentzel.—*The Lancet*, September 4, 1886.

The Therapeutic Action of Chloride of Sodium.—After dealing with the physical and chemical properties of this salt, and its physiological action on

animals and plants, DR. BRANCHE gives the results of his own observations in man. The blood, the saliva, and the urine show a notable increase in the proportion of the salt a few minutes after its ingestion. Its effect on digestion is not only to augment the secretion of gastric juice, but also to increase its acidity. After taking ten grammes daily, more than the usual quantity, for two months, the number of blood corpuscles was found to have increased, with a diminution of the albumen and watery constituents of the blood. The excretion of urea is increased, owing either to better diffusion or to acceleration of organic combustion. With ten grammes daily in addition to the ordinary consumption of salt, the amount of urea was augmented to the extent of four grammes (Rabuteau). Although certain advantages appear to follow a slight increase in the quantity of salt taken, an excess is certainly injurious; in one case death followed the ingestion of 500 grammes of sea salt. This toxic effect, however, has been denied. Deprivation of the ordinary ration of salt is rapidly followed by general feebleness, albuminuria, and anæmia. The condition likely to derive most benefit from a course of treatment with chloride of sodium is (according to Dr. Branche) struma, but anæmia and tuberculosis are also improved, if not cured. Dr. Pidoux recommends phthisical patients to eat largely of salt at meals. Goat's milk, rendered saline by the addition of twelve to fifty grammes of salt to the diet of the animal daily, is highly spoken of. Bouchardat has remarked that well-salted meat diminishes the thirst of diabetic patients to some extent, and lessens the excretion of sugar. In the form of baths its good results are well known in the treatment of chronic rheumatism, gout, gravel, and biliary calculi. Several observers have seen malarial fever arrested by doses of salt varying from ten to fifteen grammes. In solution, it has been recommended for intravenous injection for cholera, and to destroy the *oxyuris vermicularis* in children. The effect of salt is antidotal to nux vomica and curare, and to lead and silver salts. The necessity for avoiding the ingestion of salt in any form for some hours after the administration of calomel is, or should be, well known. In conclusion, Dr. Branche points out the benefit to be derived from the use of mineral waters of the Friederichshall type, containing chloride of sodium, whereby the depressing effects of saline laxatives is counteracted by the salt.—*London Medical Record*, July 15, 1886.

MYDRIATICS IN OPHTHALMOLOGY.—In a lecture thus entitled, which is published in the *Twenty-Second Annual Report of the Alumni Association of the Philadelphia College of Pharmacy for 1886*, DR. S. D. RISLEY presented the following conclusions:

1. That the sulphates of atropine, duboisine, and hyoscyamine, and the hydrobromate of homatropine, are efficient agents for paralyzing the accommodative function, and in the treatment of asthenopic eyes.

2. That in the employment of the last three named the duration of the treatment is very much shortened.

3. That, for the correction of anomalies of refraction in otherwise normal eyes, the homatropine is to be preferred.

4. That if retino-choroidal disturbance is also present, hyoscyamine or duboisine is preferable: (*a*) to atropine, because of the shorter duration of the treatment; (*b*) to homatropine, because of their more persistent control over the ciliary muscle.

5. That hyoscyamine is preferable to duboisine, since the tendency to systemic poisoning is less.

The preparations of hyoscyamine which have of late been furnished me, have seemed more persistent in their control of the accommodation than those first employed. In a few instances this has been so markedly the case as to justify the suspicion that atropine had been used to substitute or adulterate the hyoscyamine, or that some other alkaloid was present in the hyoscyamus, which, in the process of manufacture employed by some chemists, was not eliminated from the hyoscyamine.

INFANT FEEDING.—DR. E. P. THURSTAN writes as follows to *The Lancet* of Sept. 4, 1886. The vendors of the various foods for infants lay great stress on the fact that the starch of the wheat has undergone some change which renders it easier for digestion. This may be true to some extent; the diastase, when present, may convert a portion of the starch, but this (in the early weeks of life, at all events) is probably a secondary function. The following case which has recently occurred in my practice will illustrate my views, and, I think, confirm their correctness:

The wife of a well-to-do tradesman was prematurely confined of a female child nine weeks before she was expecting it; the presentation was breech and footling. When the child was born, it was cyanosed and made no attempt to breathe. After performing artificial respiration for five minutes the breathing became fairly established; but the child was still cyanosed, and did not cry. I cut the cord and bled the child to two drachms, after which it cried fairly strongly. The mother had never been able to nurse her children, and no attempt to do so was made now. It was fed on milk and water, half and half of each. The weather being hot, we had no difficulty in keep up the warmth of the child, and for a few days all went well, except that the child could not be induced to drink more than half a pint of milk daily. Three days after birth it weighed 3 lb. 8 oz. A week later it weighed 3 lb. 9½ oz. In the meantime the cord and surrounding rag had come away, so that the actual gain could not have been more than an ounce, probably less. Shortly after this, sickness and slight diarrhœa came on. Veal-tea was ordered with the milk, and cream and water twice a day, instead of entire milk and water. Some powders were given, containing a third of a grain of mercury and chalk, with a little aromatic confection, ipecacuanha, and rhubarb. The diarrhœa and sickness abated, but the child was still taking very little. Eight to ten drops of brandy were added to the milk three times daily. At the end of another week the weight was 3 lb. 10 oz., being a gain of only ½ oz. The child was now fed on milk, thickened with a little patent farinaceous food. The following week the weight was 4 lb., the gain being 4 oz. The week after, the weight was 4 lb. 9½ oz., being a gain of 9½ oz. The child is now doing well.

Here is surely a clear case of a life preserved by a change of diet, and a change, too, from a diet which I may call orthodox to one that is often spoken of as absolutely injurious.

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OPERATION FOR MALIGNANT DISEASE IN THE THROAT.

THE subject of the treatment of malignant disease in the throat has attracted much attention during the past few years, and in this country became of peculiar interest a short time ago on account of the sufferings and death of General Grant. On March 21, 1883, we gave an editorial *résumé* of the facts and opinions then accessible in regard to it. But the subject is of sufficient importance to justify our recurring to it, especially as a number of valuable contributions to its literature have recently appeared.

The history of modern operations for the removal of malignant growths involving the tonsils, soft palate, tongue, and floor of the mouth—as distinguished from those implicating the larynx, which form an interesting chapter by themselves—may be said to begin with the courageous and successful removal of such a growth by external incision by CHEEVER, of Boston, an account of which he published in the *Medical and Surgical Reports of the Boston City Hospital*, first series, 1870. In this case he made an incision along the base of the jaw, meeting another one parallel to the sterno-mastoid muscle, and enucleated the morbid growth. After the publication of this case, it was claimed that both Langenbeck and Hueter had operated in a similar way in 1865, combining division of the lower jaw bone with the incisions in the soft parts. But no report of these operations had been published at that time. Resection of the jaw bone to facilitate access to a malignant growth of the isthmus of the fauces, was first practised by Billroth, in two cases, in 1861, and next by Boeckel, in 1863. In 1878, Cheever reported in the *Boston Medical and Surgical Journal*, a second case, in which he operated by external incision, and divided the jaw also. In this operation he did a preliminary tracheotomy, and sutured the jaw bone with wire. This patient also recovered, although the morbid growth soon recurred.

In 1883, POLAILLON did the first of six operations for malignant growth of the throat, which is fully reported, with other cases, in the *Gazette Médicale de Paris*, July 17, 24, and 31, 1866, adopting in three cases the plan of resecting part of the lower jaw, and in one, of simply dividing it. Four of his patients died on the 3d, 4th, 18th, and 47th day after the operation, and two recovered, one to die the next year of recurrence of the tumor, and one in four months from a like cause. Polaillon practised preliminary ligation of the external carotid artery in five cases, two of which recovered, and three were fatal. In one case he ligated the common carotid artery, and the patient had paralysis of the opposite side, which persisted until he died of secondary hemorrhage on the 47th day, after a second ligation of the same vessel. As early as 1836, Velpeau, before removing through the mouth a cancer of the fauces, passed a thread around the common carotid artery, so as to be prepared for any excessive hemorrhage which might occur. As no such hemorrhage took place, the thread was removed on the day after the operation.

In 1883, MIKULICZ did the first of four operations for malignant disease of the throat. In this he resected the ascending ramus of the lower jaw bone. His patient made a good recovery in six weeks, but had a recurrence of the growth two years afterward. This fact, together with a report of the three other operations for the same disease, is recorded in the *Deutsche med. Wochenschrift*, Nos. 10 and 11, 1886. Of these three patients, one died of exhaustion in two and a half hours, one recovered in four weeks and died of recurrence in three months; and in one Mikulicz was not able to remove a portion of the growth which occupied the posterior nares, and which progressed in spite of the operation.

In 1884, KENDAL FRANKS reported in the *Lancet* of June 28, an operation for the removal of the tongue, left tonsil, and part of the soft palate for cancer. He made the incision from the angle of the mouth backward and through the cheek. His patient died of recurrence, nine weeks after the operation.

On June 16, 1886, VERNEUIL reported to the Societé de Chirurgie, of Paris, an operation which he did in February of this year for an adeno-myxoma of the pharynx attached to the basilar bone. A few days after a preliminary section of the soft palate, made for diagnostic purposes, he made an incision from the angle of the mouth down to the lower border of the jaw and then along this border to its

angle. Turning up the flap, he sawed through the bone at the site of the groove for the facial artery, and removed the tumor. He left the wound open, and dressed it simply with a solution of phenic acid. The wound always looked well under the influence of frequent washings and spraying with phenic acid solution; and the patient was able to feed himself without the use of a tube. But he became discouraged, would not eat enough, and died two months after the operation. Verneuil's plan of leaving the wound open to facilitate its disinfection has been sharply criticised, and has not been imitated.

One of the most valuable contributions to the literature of the subject is an elaborate paper by Castex, in the *Revue de Chirurgie*, for Jan., Feb., and April, 1886. In this paper the nature and treatment of malignant tumors of the throat are fully and ably discussed. Another important study of the subject is contained in the thesis of Paul Faure, "*De l'epithelioma du plancher de la bouche*," published in 1884. We have space at present only to refer to these, and to the interesting discussions as to the value of tracheotomy in operations for tumors of the throat before the Société de Chirurgie of Paris, in the beginning of this year, in which Monod, Verneuil, Trélat, Polaillon, and Le Fort took part.

Malignant growths in the throat are fortunately very rarely met with. By a combination of various statistics they appear to occur only about once in 1000 cases of malignant growths in all situations. When encountered, they should, if possible, be removed early and radically. An operation is plainly indicated when such a growth is isolated, circumscribed, movable, and unaccompanied by glandular involvement. An operation is justifiable when the growth is more extensive, and when there is moderate glandular involvement. It is forbidden when to the conditions just stated is added advanced cachexia.

Unhappily, there is not much evidence as to the final result of operations undertaken before the disease has made decided progress. And still more unhappily, there is scarcely any reason to expect a cure at a later period. Of the cases we have mentioned above, not one is known to have lived more than a few years, and almost all died of recurrence within a few months after the operation. The best results on record occurred in a case of sarcoma of the tonsil, operated upon by Genzmer, by external incision, in 1869, which showed no trace of recurrence three years afterward; and in a case of tumor of the tonsil and soft palate removed by Rizzoli, through the mouth, in which there was no recurrence twenty-four years after operation. But there is no positive evidence as to the nature of this tumor. Nevertheless, we believe operation to be justifiable in a considerable number of cases. There is a small hope of prolonging life for some months, or even for one or two years. And there is almost a certainty, if the patient survive the operation, that his condition will be materially improved. As Gosselin has said, in speaking of operations for the removal of cancer of the breast, "It is much to substitute a wound which is seen to heal for a disease which is seen to increase incessantly." And, even if the hope infused by a seemingly successful operation prove delusive, still it is a blessed delusion to the patient.

Finally, as to the proper method of operating: it appears, from the experience so far accumulated, that the best plan is to operate from the outside of the neck, as has been done by Cheever, Polaillon, Mikulicz, and others. An incision may be made in front of the sterno-mastoid muscle, from the mastoid process to the hyoid bone, and another from the upper end of the former along the base of the jaw. After clearing and raising the flap, the lower jaw may be divided or resected, and the growth enucleated, or excised with the galvano-cautery wire and the thermo-cautery knife. After controlling any hemorrhage which may occur, the flap may be replaced and sutured, leaving an iodoform tampon inside the mouth, attached by a thread to another on the outside in such a way as to effect compression. The throat must be frequently and thoroughly disinfected. The patient may be nourished through an œsophageal tube—which should be inserted while the patient is still under the influence of the anæsthetic—or by nutritious enemata, or in both ways.

The value of preliminary tracheotomy in these operations is not clear, but it may be resorted to in order to prevent the access of blood and débris to the lungs during or soon after the operation.

Ligation of the carotid artery adds a new element of danger to the operation, and we cannot see that it improves the chances of recovery. This seems to be proved positively by the experience of Polaillon, and negatively by that of other operators.

In conclusion, a remark as to the diagnosis of malignant growths in the throat may not be amiss. Before ulceration takes place, it is easy to make a mistake in this respect. As late as 1885 Mikulicz operated on a case which he supposed to be one of carcinoma of the tonsil, and, after removing an enlarged gland which *was* carcinomatous, he found the tonsil smooth, soft, and healthy, and was able to spare his patient the intended resection of the lower jaw and pharyngotomy. And years before, Blandin mistook a syphilitic ulceration of the pharynx for a malignant growth and operated upon it. For this reason it may be well, in case of doubt, to make a reasonable trial of antisyphilitic treatment before having recourse to the grave surgical procedure suitable to malignant disease.

IS CIRRHOSIS OF THE LIVER CURABLE?

THIS question has been discussed recently at La Société Médicale des Hôpitaux, according to the *Gazette Hebdomadaire*, Nos. 31 and 34, and answered affirmatively by several members, who quoted cases which seemed to bear out the view that the disease may be arrested or even cured. The diagnosis of cirrhosis is rarely reached until the onset of symptoms of obstructed portal circulation, although before this stage the condition may be reasonably suspected. The cases of cure are those in which the ascitic fluid has not reaccumulated after treatment, or, after a hæmatemesis, the symptoms have been relieved and the patient has had years of tolerable, or even good, health. Most physicians have met with such instances among their alcoholic patients.

In the discussion referred to, eight cases were reported by four or five members, and from the details we can reasonably infer that the ascites depended upon cirrhosis. But we must be careful not to confound the relief of a symptom with the cure of the disease. The post-mortem room affords examples of advanced cirrhosis in persons dying of intercurrent affections in whom there has never been any history of hepatic trouble, and, on the other hand, the most extensive dropsy may exist with a very moderate grade of interstitial change. We must look beyond the liver for an explanation of these facts. In the first place, unquestionably, we must take into account the collateral circulation carried on by the diaphragmatic, œsophageal, and lumbar plexuses, the hemorrhoidal anastomoses and the veins of the round ligament; if enormously enlarged, these may partially, or even fully, compensate for the narrowed portal channels, as in the rare instances of obliteration of the vena portæ. The degree to which this collateral circulation is established varies extremely in different cases, and is a very important factor in the duration of life in this disease. It will be found that the very instances in which advanced cirrhosis has been accidentally discovered post-mortem are those in which there are numerous supplementary blood-channels.

The two most striking symptoms of cirrhosis are ascites and hæmatemesis, in both of which the venous radicles of the portal vein are directly concerned. We are apt to consider them as immediate results of the heightened blood pressure, due to the narrowing and obliteration of the interlobular vessels; but Cohnheim's experiments indicate that this alone cannot induce either diapedesis or serous exudation. The condition of the vessels themselves must be taken into account, and in altered states of their walls we must seek an explanation of the sudden and profuse hæmatemesis, or the rapid dropsy. The abruptness with which one or other of these symptoms may supervene, as possibly the very first manifestation of the disease, points plainly to disturbances in the radicles of the portal veins, and not in the central hepatic branches, which, in the indurated organ, must be much less subject to variations in calibre.

Heretofore we have been in the dark as to the nature of these peripheral changes, but Dieulafoy has determined, in certain cases, the existence of a subacute peritonitis, and in four instances periphlebitis of the walls of the rootlets of the portal veins. These lesions have not been fully described, but their existence throws light on the origin of the dropsy and the hemorrhage, and they possibly furnish the additional factor which, as Cohnheim insists, is needed to permit transudation of blood corpuscles or plasma under heightened blood pressure. The dropsy may be due to transitory and remediable causes, anæmia for example, and does not necessarily indicate that the contraction of the portal canals has reached a high grade. These are points which must be considered in discussing the curability of cirrhosis, and, as we remarked, the relief of a symptom may not mean the removal of the disease.

We probably have not any remedies at our command which are capable of curing a cirrhotic liver. The nature of the tissue change is such as almost to preclude the possibility of restoration, but in the early stage many practitioners place great reliance upon drugs, particularly the salts of gold, phosphate of sodium, chloride of ammonium, and, as recommended by Dujardin-Beaumetz, hippurate of lime. Unfortunately the diagnosis in the cases in which these remedies have been reported to be successful is often a matter of doubt, and we very strongly suspect that when a case of cirrhosis presents features clearly enough marked for detection, the interstitial hepatitis is probably beyond arrest, as it is certainly past cure.

AN APPEAL FROM CHARLESTON.

As we go to press, we are in receipt of a letter informing us that the Medical College of the State of South Carolina has suffered considerable damage to its building, from the late earthquakes in Charleston, and that it will require $5000 to make the repairs necessary for the resumption of teaching. The College itself is without means, and the members of the profession in Charleston have been so severely crippled by their individual losses that they are unable to give it the requisite pecuniary aid. The Faculty are, therefore, compelled to appeal to their more fortunate brethren outside of the earthquake district, for immediate assistance, to enable them to repair the building in time for the ensuing winter course. The profession of medicine has always been noted for its generosity in times of distress, and the present appeal is sure to elicit a prompt and liberal response. THE MEDICAL NEWS will be happy to receive and forward contributions,

and acknowledge the same in its columns, and its proprietors take pleasure in starting the list with a subscription of one hundred dollars.

At the meeting of the American Social Science Association, Dr. Grace Peckham, of New York, read a paper on "Nervousness of Americans." This condition, she said, was due mainly to the higher form of civilization, the excitement due to self-government and progressive ideas, and the struggle to win large fortunes, and not due to climate or to diet. It was further stated that it should be looked upon as an attribute, not a stigma.

This view of the case is of interest, and is well worthy of consideration, but it is not a complete view. Granting that the "attribute" of American nervousness exists, and granting also that it is the outcome of a worthy national striving and ambition, it by no means follows that the condition is either right or inevitable. And the effort for amelioration of such a national trait lies distinctly within the province of the medical profession.

The Lancet this week, within its mourning-bordered cover, conveys the sad intelligence of the death of its editor Dr. James G. Wakley, which occurred on the morning of the 30th ult., from epithelioma of the tongue. This announcement is of more than passing moment, for it chronicles the demise of one who for more than a quarter of a century has guided the course of a journal which has exerted a marked and goodly influence on the profession of medicine in Great Britain.

Dr. Wakley was the youngest son of Mr. Thomas Wakley, the founder of *The Lancet*, and he proved a worthy successor to his distinguished father in its editorial control, which he assumed about the year 1859. He never engaged in medical practice, but was wholly absorbed in his editorial labors. He took an especial and active interest in boldly exposing in his columns medical abuses and public evils, and the direct impress of his character largely contributed to give to *The Lancet* the commanding position in medical literature which it has held for many years.

SOCIETY PROCEEDINGS.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Annual Meeting, held at Buffalo, August, 1886.

(Specially reported for The Medical News.)

(Concluded from page 276.)

Dr. Theobald Smith, of Washington, spoke on

THE VARIABILITY OF PATHOGENIC ORGANISMS, AS ILLUSTRATED BY THE BACTERIUM OF SWINE PLAGUE.

By inoculation into mice, a bacterium was inoculated from one of a number of spleens taken from swine plague in Nebraska, which resembles the bacterium of swine plague found in the east, in regard to its morphological and pathogenic characters, and yet differs from it in certain minor histological features, so that it seems justifiable to regard one as a variety of the other, or both varieties of a third form.

This new bacterium resembles the bacterium of swine plague in form, size, and mode of staining. Like the former, it is motile when cultivated in liquid media and fails to liquefy gelatine. Both grow alike on agar-agar and potato, and both fail to affect the microscopic appearance of milk in which they multiply. The thermal death point of both is about 58° Centigrade. Cultures of various ages are killed by an exposure to this temperature for fifteen or twenty minutes. In neither is there any indication of spore formation. Both produce the same lesions in mice, rabbits, and pigeons after the subcutaneous injection of pure cultures.

This bacterium differs from the bacterium of swine plague in the following minor but constant features: 1. In liquid cultures of the former the surface was covered by a complete membrane within one or two days, which is invariably absent in cultures of the latter, but may occasionally appear in advanced old cultures. 2. It is more sensitive to the reaction of the culture media, as it failed to grow in neutral gelatine but grew vigorously in the alkaline medium. 3. This microbe failed to induce the disease in guinea-pigs.

The study of these two related microbes presents the first evidence as to the possibility of the variation of pathogenic forms. It raises a number of questions as to the causes of variation, whether dependent on external conditions, such as climate, soil, etc., or upon the organization of the susceptible animals, which, in turn, depends upon their food, mode of life, race, etc.

These facts suggest the possibility of the variation of other pathogenic microbes and may offer an explanation of the varying virulence of epidemics of the same disease at different time and in different localities.

Very recently a third form was obtained from swine plague in Illinois, which resembles the two forms compared in its microscopic characters, its motility in liquids, its failure to liquefy gelatine, and in its powerfully narcotic effect on muscular tissue at the place of inoculation. It is fatal to mice, rabbits, and pigeons only when a larger quantity of virus is injected than is needed in case of the two other forms. Of the three forms, it seems to be least adapted to a true parasitic existence.

Dr. D. E. Salmon, of Washington, made some remarks on

THE THEORY OF IMMUNITY FROM CONTAGIOUS DISEASES

He discussed the antidote theory, the exhaustion theory, and the vital resistance theory, and cited experiments to show the latter to be the true one. The tissues of the body when normally active are not suited to the growth of microbes; the former are overcome by a poison produced by the latter. Immunity is a tolerance of the tissues for this poison and can be produced by injecting into the tissues the poison which contains no living germs.

Dr. Sternberg claims priority for having originated the vital resistance theory of immunity. Dr. Law

claims to have reached the same conclusion independently and at the same time, and to have demonstrated that immunity might be produced with sterilized virus.

Dr. Salmon showed that the theory under consideration was offered several years before the time claimed by either of these gentlemen; also that Law's demonstration was unsatisfactory, that his experiments repeated by the writer do not sustain his claims, and that it is not probable that immunity can be granted under the conditions of this experiment.

DR. SALMON then offered some remarks on the

IMMUNITY FROM CONTAGIOUS DISEASES PRODUCED BY PRODUCTS OF BACTERIAL MULTIPLICATION.

When children have recovered from the measles they conclude that one of the troubles of life have been overcome, and no matter how much they are exposed to that disease in the future, they rely upon their power to resist it without inconvenience. As a rule, their expectations are correct. The first attack has granted them an immunity from the effects of the contagion, which, while it is not absolute in every case, is certainly very remarkable. It is also a matter of the most common observation that other contagious fevers to which people are subject grant a similar immunity—a power to resist those particular forms of contagion for the remainder of the individual's life. The same is true of certain contagious fevers of other species of animals.

The nature of such acquired immunity has long been an interesting subject for speculation, and until comparatively recent times it has been mysterious and incomprehensible. Since the demonstration of the germ theory of disease it has become evident that there were three possible explanations.

1. Something had been deposited in the body during the attack of disease that was unfavorable to the specific germ.

2. Something had been exhausted which was essential to the development of this germ.

3. The living tissues had acquired such a tolerance for the germ, or for a poison which it produces, that they are no longer affected by it.

If either the first or the third of these explanations were correct, it would appear possible that immunity might be granted by introducing into the tissues the liquid in which the specific germs had been cultivated, and from which they had been removed by filtration, or in which they had been killed by suitable methods. He has long been convinced of the correctness of this supposition, but it is only recently that he has been able to make a satisfactory demonstration of the principle.

In these experiments he has used the virus of the contagious fever of hogs, known as swine plague. This virus, cultivated in the laboratory in suitable liquids, is very destructive to pigeons when injected hypodermatically in the region of the pectoral muscles, in doses of three-quarters of a cubic centimetre. To test the protective effects of the products of bacterial growth, the virus referred to was cultivated in a one per cent. solution of peptone. After a number of days' cultivation, the culture was raised to 58° to 60° C.—a temperature which soon kills the microbe; but to make sure that all life was destroyed, he invariably transferred a few drops of the heated liquid to a fresh tube of culture fluid. If any multiplication of the germs occurred, it was of course evident that the temperature had not been high enough, or was not maintained for a sufficient time. This made it necessary to repeat the operation. As the thermal death point of the microbe had been carefully determined, and as care was used to raise the temperature somewhat beyond this point, it was seldom that any of the organisms remained alive. No liquid was used in these experiments, however, which had not been tested in this way and found free from living organisms. The necessary details will be found embodied in the table below.

Of the nine experiments included in the table, five, viz., the first, second, fifth, seventh, and eighth, give very positive results. In these 27 pigeons were used.

TABLE SHOWING RESULTS OF EXPERIMENTS.

Pigeons. No.	Sterilized virus. 1st dose. c. c.	2d dose. c. c.	3d dose. c. c.	4th dose c. c	Tot'l.	Living virus. c c.	Results of inoculation.
1st Exper.							
1	0.4	1 5	1.5	1.5	4.9	0 75	No effect.
2	1.5	1.5	1.5	...	4.5	0.75	" "
3	1.5	1.5	1.5	...	4.5	0 75	" "
4	1.5	1 5	0.	...	3.	0.75	" "
5	0.8	0.	...	...	0.8	0.75	Death in 48 hours.
6	0.	0.	...	...	0.	0 75	" 24 "
2d Exper.							
7	1.	1.	0.75	...	2.75	0.75	No effect.
8	1.	1.	1.	...	3.	0.75	" "
9	1.	1.	1.	...	3.	0.75	" "
10	1.	1.	...	...	2.	0.75	" "
11	1.	1.	...	...	2.	0.75	" "
12	1.	1.	...	...	2.	0.75	" "
13	0.	0.	...	...	0.	0.75	D'th within 24 hrs.
14	0.	0.	...	...	0.	0.75	" " "
15	0.	0.	...	...	0.	0.75	No effect.
3d Exper.							
16	1.	...	...	...	1.	1.	Death in 6 days.
17	1.	...	...	...	1.	1.	" 16 "
18	1.	...	...	...	1.	1.	No effect.
19	0.	...	...	...	0.	0.	" "
4th Exper [1]							
20	1.	1.	...	...	2.	0.75	All slightly sick, but recovered.
21	1.	1.	...	...	2.	0.75	
22	1.	1.	...	...	2.	0.75	
23	0.	0.	...	...	0.	0.75	
5th Exper.							
24	1.	1.	...	...	2.	0.75	No effect.
25	1.	1.	...	...	2.	0.75	Slightly ill: recov.
26	1.	1.	...	...	2.	0.75	No effect.
27	0.	0.	...	...	0.	0.75	Death in 5 days.
6th Exper.							
28	1.	1.	...	...	2.	0.75	" 7 "
29	1.	1.	...	...	2.	0.75	" 11 "
30	1.	1.	...	...	2.	0.75	No effect.
31	0.	0.	...	...	0.	0.75	" "
7th Exper.							
32	1.	1.	...	...	2.	0.75	" "
33	1.	1.	...	...	2.	0.75	" "
34	0.75	1.	...	...	1.75	0.75	" "
35	0.	0.	...	...	0.	9.75	" "
8th Exper.							
36 [1]	1.	1.	...	...	2.	0.75	" "
37 [1]	1.	1.	...	...	2.	0.75	" "
38	1.	1.	...	...	2.	0.75	" "
39	0.	0.	...	...	0.	0.75	Death in 2 days.
9th Exper.							
40 [1]	1.5	1.5	...	...	3.	0.75	" 3 "
41 [1]	1.5	1.5	...	...	3.	0.75	No effect.
42	1.	1.	...	...	2.	0.75	" "
43	1.	1.	...	...	2.	0.75	" "
44	0.	0.	...	...	0.	0.75	Death in 1 day.
45	0.	0.	...	...	0.	0.75	Sick; recovered.

[1] Evap. virus.

Résumé of Experiments.

	No. inoculated.	Died.		Recovered.		Not affected.	
		No.	per ct.	No.	per ct.	No.	per ct.
Protected with more than 1 c.c. sterilized virus . . .	29	3	10.3	4	13.8	22	75.9
Unprotected . . .	15	10	66.7	2	13.3	3	20.0

Of the 19 protected pigeons not one died from inoculation, and 18 had acquired perfect immunity; while of the 8 unprotected pigeons, which were used as checks, 7 died and but 1 resisted. The ninth experiment is almost equally positive. In this case, the virus used for the birds was evaporated over a water-bath to learn if a boiling temperature destroys the protective power. One of the pigeons so treated did not gain immunity.

The negative results of the other experiments were partly due to changing the conditions in order to learn those which were favorable and unfavorable to the production of the desired effect.

Dr. Joseph Jastrow, of Baltimore, read a paper on

THE DREAMS OF THE BLIND AND THE CENTRES OF LIGHT.

The object of the paper was to determine the extreme age at which a child may become blind and yet lose all memory of the visible world, so that it no longer sees in dreams.

Almost all dreams of normal persons are sight-dreams, and a dream is often spoken of as a vision. The blind are deprived of this most important sense; but if they have not been born blind, they may remember enough of what they have seen to enable them to imagine how things look, and, when the imagination has free play in sleep, to picture themselves as in full possession of all their senses. Physiologists would explain this by saying that during the years in which they saw, a certain part of the brain has become educated to receive and interpret all these messages which the eye sends, and that, when this part of the brain acts spontaneously in sleep, the person dreams of seeing. Such a portion of the brain would be called the sight-centre.

If, now, we find out the latest age at which blindness may set in, and yet the person keeps on dreaming of seeing, we will find out the time it takes for this sight-centre to develop; for, of course, it is not present in the newborn infant. For this purpose about two hundred blind persons of both sexes were questioned at the institutions for the blind in Philadelphia and Baltimore, and it was found that those who became blind before their fifth year never dreamed of seeing; of those whose sight was lost between the fifth and the seventh year, some did and some did not see in their dreams; while all whose eyesight was destroyed after the seventh year had quite as vivid dream-visions as seeing people. The fifth to the seventh year is thus shown to be the critical period. This period corresponds with the age which authorities assign as the limit at which a child becoming deaf will also become dumb; and also with the age of one's earliest continuous memory of one's self.

It is interesting to note that blind persons dream quite as frequently as people with normal sight, and that with those who do not see in their dreams, hearing plays the principal part. When dreaming of home, for instance, they will hear their father's voice or their sister's singing, and perhaps will feel the familiar objects in the room and thus know they are at home. We, in such a case, would see it all.

CORRESPONDENCE.

THE HYPODERMATIC ADMINISTRATION OF MORPHIA FOR AUTUMNAL CATARRH.

In the *American Journal of the Medical Sciences* for Jan. 1873, I called attention to the hypodermatic administration of morphia for autumnal catarrh. Experience has confirmed the efficacy of this treatment in relieving the paroxysms of this disease, and in moderating the severity of its annually recurring attacks. I venture to report a typical case, though unfinished, because the season is still at its height, and the treatment is available to those practitioners who have not the opportunity to use local means for the radical cure of this distressing ailment.

September 2, 1886. Mrs. A., æt. thirty; disease dates back many years; attack began August 10th, several days earlier than usual; went to the seashore for a fortnight, during which time the severity of the symptoms diminished; returned on the 30th, with immediate bad results.

Present condition: Violent sneezing, eyes and nose itching, swollen, and streaming; incessant wheezing cough during the day; at night, severe asthma, necessitating the upright position, and entirely preventing sleep. One-fourth grain of morphia sulph., hypodermatically gave instant and entire relief, which lasted nearly forty-eight hours. This was repeated on the 4th, 6th, 8th, 10th and 11th, with like result (on the last date, sooner, on account of the conjunctival irritation). I shall probably be able during the remainder of the period to keep the attack under control, with half-weekly injections. I have not in this, and other cases, obtained relief by the local application of a six per cent. solution of cocaine hydrochlorate.

Wm. Moss.

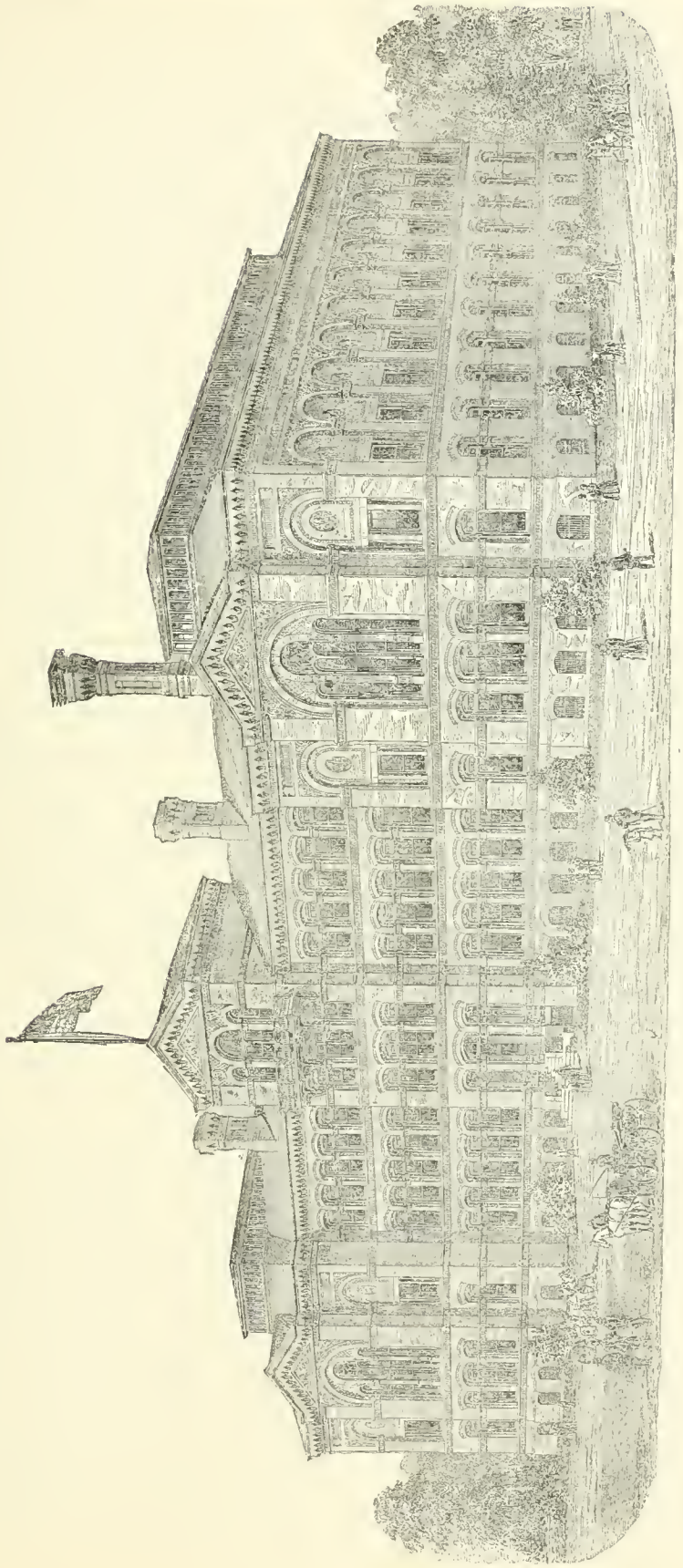
Chestnut Hill, Philadelphia, September 12, 1886.

NEWS ITEMS.

WASHINGTON.

(*From our Special Correspondent.*)

The Building for the Army Medical Museum and Library is being erected on the southeast corner of the grounds occupied by the Smithsonian Institution, and will, when completed, be in close proximity to the National Museum and the Smithsonian Institution. This site is readily accessible by the street cars, but is a little out of the way of ordinary travel either for business or pleasure. The reservation comprehends 270 x 160 feet, facing B Street which is south, and abutting on 7th Street. The plans for the building were prepared by Cluss, the architect, under instructions from Dr. Billings, acting for the Surgeon-General. According to the plans, the building is to cover a space of 232 x 136 feet. The appropriation granted by Congress for building purposes was $200,000, being $50,000 less than was asked for, and required a modification of the plans and a plain severity of style of finish, devoid of ornamentation.



MEDICAL LIBRARY AND MUSEUM, U.S. ARMY
Washington, D.C.

The accompanying cut gives an idea of the exterior of the building as it will appear when completely finished with pressed brick and terra cotta, the roof being constructed of rolled iron beams and trusses.

As to the general arrangement and construction of the building, the complex consists of a centre building 112 feet in length, 55 feet in width, and four stories high above the basement. It is arranged for the administration clerks and photographer. This structure is flanked by two wings of 60 x 131 feet. They contain a basement, a first story allotted to offices, and a second story, open to the roof and surrounded by galleries. This second story accommodates the museum in the east wing and the library in the west wing. Both wings have continuous ventilating lantern skylights. A smaller wing in the courtyard, will hold the steam-boilers, steam-pumps, and coal cellar. The basement is eleven feet in height; the first story fifteen, the second story fourteen, and the third and fourth stories thirteen and twelve feet high respectively. The museum and library are thirty-one feet high to the eaves and forty-seven feet to the ridge of the lanterns. The placing of such an enormous quantity of books in the library will produce a very heavy weight which will require unusually strong supports on the floors below; the first floor just below the library being intended to be used for pension records.

The foundations consist throughout of concrete, the walls are built of brick, constructed with a bonded internal lining of hollow bricks for all walls exposed to the weather. The moulded work and the cornices consist of pressed brick and terra cotta. The floors of the first story are constructed of brick arches between rolled iron beams, the floors above are formed of flat arches, built of hollow bricks between rolled beams. The roofs of the centre building are constructed similarly to the floors, but of lighter material. The columns used are of fire-proof sectional wrought iron. The library and the museum are constructed so as to form fire-proof compartments separated from the other parts of the building. The stairs are of wrought and cast-iron.

The contract calls for the completion of the building by February 1, 1887, but unanticipated difficulties which have arisen in securing suitable brick during the present season, will cause a delay of some weeks. The basement and first story walls of the building are up, and the first tier of iron beams laid. The appropriation asked for, sixty thousand dollars, is mainly for the iron frames and shelving of the book stacks, and similar furnishing for the pension records, exhibition cases of museum, etc., and, a very important item, for the construction of an addition, for the disposition of all material such as is used in laboratory work, as may by its fumes or gases tend to injure the contents of the main building; and for the laboratory and work-rooms.

The library wing (west) is provided with thirty-four stacks, solely for the accommodation of the books and library material; where the wing is joined to the centre building, and where consequently the light is less in amount, tables will be placed for the accommodation of large atlases of plates, portfolios of engravings, etc.; readers and casual visitors being provided for by suitable reading-rooms close at hand, where books can be brought to them as desired. These stacks have each three stories, and each story, which is seven feet nine inches high, has four divisions, the lower two giving shelf room of twelve inches in depth for the more ponderous tomes, the upper two of eight inches depth, well lighted by windows, making thirty-four shelves to each story of a single stack; and an estimated total capacity of 170,000 books. The classification of these books and their proper positions upon the shelves for readiness of access, are the problem which is now being considered. When we refer, a little further on, to the museum wing and its arrangement, it will be seen that a classification has been prepared there which seems to meet the requirements fairly and satisfactorily; and a similar classification will be attempted with the library, modified, of course, by the different nature of the material to be utilized.

The museum wing is lighted for the first story by its side windows, but for the second story, formed by a gallery, has to depend upon the skylight, consequently the exhibition cases will be varied in their arrangement for each story, the gallery having side or wall cases as well as those placed transversely, and along the central border of the gallery platform it is proposed to place those beautiful dissections made under spirits, after Turner of Edinburgh, which are placed in porcelain bowls with cemented glass covers, familiar to those who have visited the English museums—of which Dr. Billings has obtained fine specimens from Dr. Cunningham, of Dublin, and which have been most admirably followed by Mr. J. S. Wortman, the anatomist of the museum. Dr. Billings proposes to have about 150 of these so placed. When one sees these specimens for the first time, he is very apt to become enthusiastic over them, but they are probably well known to many of the readers of The News.

The microscopical material, although belonging to the museum, must, of course, be handled in a way peculiar to itself, and has its own room off from the museum in the central building, where probably the curiosity-seeker will not find much to attract him, but the student will have suitable instruments and ample opportunities to take full advantage of the collection. Near the microscope room, is a room still in the centre building—third floor—which will be fitted up with apparatus corresponding to Galton's views upon the subject, as an anthropometric room. This is likely to prove a very interesting feature of the new building. At first its use will probably be limited, as its records would be confined to a few occasional and well-known visitors, but, as its usefulness and importance become better known and more widespread among the throng of visitors to the National Capital, there may be an imperative demand for an extension of its scope, and its records become voluminous and correspondingly valuable. To complete the usefulness of the museum itself, upon the first floor, adjoining the rooms set aside for the pathologist and anatomist, is a large and suitable room fitted up with drawers and cabinets to contain the study collection, that is, specimens of osteology which are disarticulated and prepared in the rough to show certain characteristics, and other specimens and preparations that can be handled by the student.

In going further and attempting to give an idea of the mode of handling and classifying the material to be displayed in this museum, I cannot do better than to

refer to the remarks made by Dr. Billings at a recent meeting of the Philosophical Society in this city.

The subject under consideration was the management of museums, and the whole discussion was well worthy of being reported in full. Material illustrating the subject was exhibited, and the argument was sustained by Dr. Billings on the part of the Army Medical Museum, Prof. G. Brown Goode and Mr. Lucas on the part of the National Museum, and by Mr. Merrill giving his ideas of a Geological Museum. Dr. Billings stated the special scope and purposes of the Army Medical Museum to be:

1. To illustrate the effects, immediate and remote, of wounds, and of those diseases prevalent in the army—that is, the diseases and injuries of adult males.

2. To illustrate the work of the medical department of an army, modes of transporting the sick and wounded, hospitals, medical supplies, instruments, etc.

3. To illustrate human anatomy and pathology of both sexes and of all ages. This requires many specimens in comparative anatomy and pathology, which are indispensable for the correct understanding of the structure, development, abnormities, and diseases of man. This would not form a museum of comparative anatomy, which belongs to the functions of the National Museum.

4. To illustrate the morphological basis, or want of such basis, for ethnological classification, more especially of the native races of America, including anthropometry and craniology.

5. To illustrate for medical investigators and teachers the latest methods, the newest apparatus, etc., for biological investigations, and various modes of preparing and mounting specimens. In connection with this it is hoped to induce original workers to deposit in the museum type specimens, or series of specimens illustrating their discoveries and methods.

With this outline before us it is easy to see the importance of a clear and well-defined classification to work upon before the first specimen is placed in position. It was well said at the meeting referred to, that a museum should be a museum of labels as well as of specimens; how forcible the application must be to the classification. Accordingly, the classification is given in the following general plan:

A. General and regional anatomy, physiology, and pathology:

a, Head and neck; *b*, thorax; *c*, abdomen; *d*, pelvis (for female pelvis see M.); *e*, upper extremity; *f*, lower extremity.

B. Skeleton (bones, ligaments, and joints):

a, Skull; *b*, vertebræ, ribs, sternum, and hyoid; *c*, pelvis; *d*, upper extremity; *e*, lower extremity.

C. Muscular system (muscles, tendons, and fasciæ):

a, Head and neck; *b*, trunk; *c*, upper extremity; *d*, lower extremity.

D. Circulatory system:

a, Heart and pericardium; *b*, arteries; *c*, veins; *d*, capillaries.

E. Lymphatic system and ductless glands:

a, Lymphatics; *b*, spleen; *c*, supra-renal capsules; *d*, thyroid gland; *e*, thymus gland.

F. Nervous system:

a, Encephalon (exclusive of medulla); *b*, medulla oblongata and spinal cord; *c*, peripheral and sympathetic nerves.

G. Respiratory system:

a, Larynx and trachea; *b*, lungs and pleura.

H. Digestive system:

a, Teeth; *b*, mouth; *c*, pharynx and œsophagus; *d*, stomach and duodenum; *e*, intestines (exclusive of anus and rectum); *f*, anus and rectum; *g*, salivary glands; *h*, pancreas; *i*, liver; *k*, peritoneum.

I. Organs of sense:

a, Eye and appendages; *b*, nose; *c*, tongue; *d*, ear.

K. Urinary organs:

a, Kidneys and ureters; *b*, bladder and urethra.

L. Male generative system:

a, Scrotum, testes, and vasa deferentia; *b*, vesiculæ seminales, prostate, and Cowper's glands; *c*, penis.

M. Female generative system and pelvis:

a, Pelvis; *b*, ovaries; *c*, uterus, ligaments, and Fallopian tubes; *d*, vagina and vulva.

N. Tegumentary system.

O. Microscope.

P. Weapons, missiles, and foreign bodies.

Q. Transportation and care of sick.

R. Anthropology.

S. Materia medica and chirurgica.

T. Miscellaneous.

The above comprise the main heads of the division into subjects; to make this available there follow the numbered subdivisions coming under the lettered headings:

1. Embryology and development.
2. Anatomy and physiology.
3. Abnormities and deformities.
4. Diseases.
5. Injuries and foreign bodies.
6. Repair and restoration.
7. Surgery.

To make the subdivisions clearer, they, too, must in some cases undergo further division. Take for example:

4. *Diseases*; under this head will be found
41. Disorders of the circulation.
42. Hypertrophy and dilatation.
43. Atrophy, degeneration, and mortification.
44. Inflammation and its sequelæ.
45. Parasites, parasitic and infectious diseases.
46. Tumors and concretions.
47. General diseases.
48. Diseases peculiar to the system or organ.
49. Other diseases.

One or two illustrations will suffice, I think, to show clearly the practical working of this system. For instance, here is specimen No. 1052. A wet preparation of the heart with the left ventricle perforated by gunshot near the apex. It is marked D. *a*, 5., or D. Circulatory system; *a*, heart; 5. Injuries and foreign bodies.

Another is specimen 5700. A wet preparation of the cancerous integument of a hand. This is marked A. *e*, 46., or A. General and regional anatomy; *e*, upper extremity; 46. Tumors and concretions. It has also a cross reference, N. 46., or N. Tegumentary system; 46. Tumors and concretions.

It is not proposed to place specimens illustrating normal anatomy in one place, and pathological specimens in another, but to place together as far as possible all the specimens illustrating the morphology, development,

and pathology of a particular organ or system, including both wet and dry preparations, models, casts, etc.

It remains for time to show how far this system will answer its purpose.

A Wise Precaution.—Before undertaking an autopsy, Dr. Clevenger recommends holding the hands over strong liquid ammonia, when the smarting which ensues will reveal all sensitive or abraded places that need a touch of caustic or other protection before beginning the examination.

New Metric Abbreviations.—The International Committee of Metric Weights and Measures has adopted the following system of abbreviations. Italics are employed, with the exponents 2 and 3 to denote square and cubic measure: Metre = *m*, decimetre = *dm*, centimetre = *cm*, millimetre = *mm*, kilometre = *km*. Metre square = m^2, metre cube = m^3, and so for the rest. Litre = *l*, decilitre = *dl*, etc. Kilogram = *kg*, dekagram = *dkg*, gram = *g*, decigram = *dg*, centigram = *cg*, and milligram = *mg*.

A New Infirmary.—The corner-stone of a new infirmary for the Five Points House of Industry, in New York, was recently laid with appropriate exercises. The building, which will be ready for occupancy in October, is to be four stories high, and will have a frontage of twenty-five feet and a depth of eighty feet; with accommodations for about eighty patients. The erection of this infirmary was rendered necessary by an act of the Legislature, passed at the last session, requiring children suffering from infectious eye disease to be isolated.

Lunacy Commission.—At the meeting of the Philadelphia County Medical Society on September 8, Drs. Mills, French, and Henry, were appointed a committee to visit all asylums for the insane in the county of Philadelphia, in accordance with the request of the State Commission in Lunacy.

The Pasteur Institute has received a donation of 100,000 francs from the Russian Government.

The Second Congress of Russian Physicians will be held in December of this year, in Moscow. The president of the association is Professor Sklifassovski.

Condemnation of a Midwife.—In Altenburg, recently, a midwife was sentenced to imprisonment for two years, because she advised the parents of an infant suffering from ophthalmia not to seek medical advice. The only treatment consisted in local applications of chamomile tea, and the child lost one eye in consequence.

A Two-pound Child.—Dr. S. L. Post reports in *Daniel's Texas Medical Journal* that he delivered a woman, twenty-three years of age, and the mother of three children, of a fœtus weighing only two pounds. There were no pulsations in the cord, which was cold and atrophied, and wholly detached from the placenta. After diligent work the child was made to breathe, and it is now as well as any infant. The woman menstruated regularly during her entire period of gestation, and during the last four weeks flooded so profusely that she was unable to attend to her domestic affairs.

Homo Caudatus.—Dr. Elisseyeff reported the following case at the meeting of Russian physicians held in St. Petersburg in April (*Vratch*, No. 16, 1886). A woman, twenty-three years of age, consulted him on account of a projection in the coccygeal region, which had become very painful from the irritation of a bandage which she had used to prevent its growth. The tail was nearly two inches long and over half an inch broad, and was composed of two vertebral segments covered by fat and hairy integument.

Medical Inspection in Brooklyn.—The Brooklyn Commissioner of Health, Dr. Andrew Otterson, has inaugurated in that city an admirable system of medical inspection and relief in the tenement-house districts, with special reference to the diseases of infants during the heated season. Ten physicians have been appointed, each assigned to a special locality, who are instructed to search for sick children needing attention, and to care for them, furnishing medicine gratuitously where parents are unable to pay for it, and at a reduced price to those who can. They are to note the condition of premises, and report where sanitary improvements are needed, give advice as to healthful manner of living, urge parents to take their children into the fresh air as much as possible, and give orders on the diet dispensaries for proper food when it cannot be obtained otherwise. The salaries of the physicians ($75 a month) are to be paid out of the emergency fund. As a contrast to this beneficent movement in Brooklyn, the New York Board of Appointment this year refused to allow the appropriation devoted last year to similar uses, with the result of a marked increase of infant mortality in the crowded districts of that city.

Repeated Vaccinations in the Incubation Stage of Smallpox.—A Russian medical student, M. Gubert, recently performed a series of experiments with calf vaccine, chiefly making use of dogs as subjects, for the purpose of deciding whether there is any use in vaccinating persons (1) who have already been infected by smallpox, (2) who are in the incubation stage, or (3) in whom the disease may have actually begun to manifest itself. This question, he says, has generally been decided in the negative, on the ground that insusceptibility to smallpox is only obtained thirteen or fourteen days after vaccination—that is, after a period at least equal to that of the incubation stage. Having somewhat modified the method of vaccinating, M. Gubert, who describes his experiments in the *Zemskaya Meditsina*, was able to obtain vaccine vesicles in a shorter time than usual. By repeating the vaccination on three successive days he was able to produce mature vesicles in four or five days. This rapid saturation of the organism with the vaccine virus enabled M. Gubert to arrest the development of the disease in twenty-seven persons, in whom, he states, he was quite certain that the smallpox was incubating, while in twelve others the disease was so modified as to be considered only varioloid. The vaccination was performed in some cases when the temperature had already reached 40° C. It should be remarked that all the experiments were

carried out with calf lymph, so that we are as yet without information as to whether humanized vaccine could be made to "saturate the organism" sufficiently to produce mature vesicles in four or five days. At all events, M. Gubert's observations are interesting, and worthy of repetition by other practitioners.

MEDICAL EDUCATION IN CHINA.—The attempts which have hitherto been made to promote medical education in China have failed, in consequence of the inability of natives to acquire a sufficient mastery of English; these difficulties, however, it is hoped, have at last been surmounted, due largely to the persistent energy of Dr. Myers. About two years and a half ago, through the kindness of some officials in Hong Kong, the matter was laid before the boys at the Central School, and two of the senior scholars, named Chan Chun-kai and Li Tsun-fan, volunteered to go to Formosa, and enter upon the course of study prescribed. The following is the scheme: the subjects for study—anatomy, physiology, elementary surgery, and inorganic chemistry—forming the topics of the first professional examination. No candidate is allowed to present himself unless he produces a certificate from a legally qualified medical man of having studied these subjects for the full period of two years, the examination to be held at either Hong Kong or Shanghai, before a board of the most eminent men within reach. After having passed this, the candidate returns to the hospital, and studies for a further term of two years the following subjects: practice of medicine, midwifery, clinical medicine, and clinical surgery, including operative surgery, use of instruments, medical and surgical, and bandaging, with materia medica and pharmacy. Having obtained a certificate to this effect, and also one of his identity with the candidate who passed the first examination, he would be entitled to present himself before a similar board in either Hong Kong or Shanghai, accordingly as either port had been selected for the first professional. Should he be found proficient, he will then be entitled to receive a certificate of competency or diploma from the hospital setting forth these facts in English, Latin, and Chinese. In accordance with this scheme, Dr. Myers recently brought down the two students, who underwent the examination with the following results: Li Tsun-fan obtained 72.6 per cent., and Chan Chun-kai 70.5 per cent. of possible marks. The presentation by his Excellency, the acting governor, of certificates granted to the two successful candidates for the first professional examination for the license from the David Manson Memorial Hospital, took place on May 28th at the Central School.

AMERICAN CANNED GOODS are being imported into France so rapidly and in such quantities as to alarm the producers of that country. As a result of this, we shall probably see a revivification of all the instances reported in the daily papers in past years of poisoning from these articles, some of which may have been due to the negligence of those engaged in the canning process, but most of which were undoubtedly due to carelessness or want of thought in the consumer. That the contents of some of the millions of cans annually put up for market in the United States should spoil is not to be wondered at, inasmuch as every housewife has the same experience in her domestic preserving. But in most of the instances where sickness has occurred from the consumption of such goods, the color or the taste gave ample warning.

SIR SPENCER WELLS has been elected, by the Section of Scientific Medicine, a Member of the Royal Leopold-Caroline German Academy of Naturalists in Halle.

DISINFECTION OF BILGE-WATER.—Following the results of experimental work conducted in the *Deutsche Reichsgesundheitsamt*, the German navy is instructed to disinfect the holds of vessels and contents with corrosive sublimate. The results of the investigations referred to are:

1. Sublimate destroys the most resistant microörganisms, and it is safe to assume that the special infectious agents that may have become established in a ship-hold can be so destroyed.

2. The sublimate should be evenly distributed. To this end so much should be added to the bilge-water that a distinct mercury reaction can be shown.

3. Complete disinfection is accomplished after eighteen hours.

4. The hold should be washed and pumped dry four successive times. Thereafter only traces of sublimate remain, that can be of no danger to the crew.

5. The ship is not injured by these sublimate disinfections.

DEATH OF ANOTHER PATIENT OF M. PASTEUR.—A child, three years and a half old, is reported, in the *Semaine Médicale*, to have died lately from rabies at Teste. He was bitten by a mad dog on June 14th last. On the 16th, he was brought to Paris, where, during ten days, he was submitted to Pasteur's treatment. After his return to Teste on June 28th, the child was seized on August 12 with the first symptoms of hydrophobia, to which he succumbed in a few days.

LAY DIAGNOSTICIANS.—A druggist in a town of 3000 inhabitants in the northern part of Iowa requires all applicants for liquor to state for what special "necessity for medicine" the liquors are to be used, and their statements are written on the application which they sign, Glancing over this druggist's report for the last month beer is found to have been purchased as a remedy for the following "diseases:" Loss of appetite, general debility, overheating, sour stomach, indigestion, biliousness, headache, rheumatism, sick headache, ague, consumption, dyspepsia.

A majority of the patients were troubled with "loss of appetite," "general debility," or "dyspepsia." For the first-named complaint thirty-three quarts of beer were required, while general debility demanded thirty-four quarts, and the dyspeptics forty-nine quarts. Sixty-nine quarts are reported as having been purchased for "family use." Whiskey also appears to be a remedy for the same line of disorders, as the following list shows: Overheating, ague, loss of appetite, colds, pain in stomach, colic, rheumatism, headache, dyspepsia, sideache, general debility.

Wine and brandy were both needed in cases of overheating, while alcohol was purchased by one man to cure corns. These facts are gleaned from the report of

one druggist only, and, as the law does not require that a record of this kind be kept, probably but few druggists in the State take the trouble to inquire for what disorders the liquors purchased of them are used. The Iowa Board of Pharmacy Commissioners lately issued a cautionary notice to pharmacists in regard to the sale of beer by them, and recent prosecutions of pharmacists who have failed to obey the spirit of the law will probably have a tendency to make them more cautious in the future.

LEASING OF AN UNSANITARY HOUSE.—A very interesting case recently came up in an English court. An owner let to a tenant a house in an unsanitary condition. Shortly after the tenant had taken the house, several members of his family were seized with an illness due, it was alleged, to the escape of sewer gas, and the illness proved fatal to his wife. He claimed damages for the expenses he had incurred in medical attendance and removal, and also for the loss of his wife, at whose death an income of £800 per annum ceased, and the trial ended in favor of the plaintiff, with a verdict for £2240.

An appeal was had and the verdict set aside, and the case now goes to the Court of Appeals. The *Sanitary World*, a high English authority, in discussing the case says: "A person about to take a house is not in a position to know much, if anything, as to the state of the drains. On the other hand, the landlord does, or should, and we take it that it is his duty to see that it is properly trapped and in good order, and should certainly ascertain this before letting his house, and if he fails in this respect we certainly think he ought to be held responsible for any ill effects his tenants may suffer through his negligence."

If, however, the Court of Appeals decides for the defendant, then, the same writer continues, it will "behoove every one who is about taking a house to have it properly surveyed before committing himself by signing an agreement even for a yearly tenancy, or to have a clause inserted in the deed that the drainage of the premises is in perfect order, which possibly would be the better way, as defects in drains are not found out at once. It is possible that the landlord will object to putting in a clause of this kind. We know that it is an unusual one, but that is no reason why it should not be made a usual one, which it would be as well to adopt at once, for even if the plaintiff does appeal, we should have to wait a very long time for the decision, and, in the meantime, houses will have to be taken; therefore, to make sure, and save after-expense, we should advise our readers to follow the course we suggest. If the drainage is all right, surely no owner would object to say so, and have it put in black and white; if he objects to this very reasonable request, his house would be better to remain empty."

A DEFINITION OF GOUT.—Dr. Milner Fothergill gives the following succinct account of the pathology of gout: "When kidneys first appear in the animal kingdom, the form of urinary secretion is uric acid. Uric acid belongs to animals with a three-chambered heart and a solid urine (reptiles and birds). The mammalia possess a four-chambered heart and fluid urine, the form of urinary secretion being the soluble urea. When the human liver becomes depraved or degraded, it has a tendency to form primitive urinary products. To the question, "What is gout?" the answer is: "Gout is hepatic reversion, when primitive urine is formed by a mammalian liver."

NOTES AND QUERIES.

CORRIGENDUM.

IN our abstract of Prof. Wilder's paper on "Cerebral Fissures," September 4th, p. 275, the omission of the word *never* between *has been* and *wholly interrupted*, reversed the author's statement.

MACROSCOPIC OR MEGASCOPIC.

To the Editor of THE MEDICAL NEWS,

SIR: In your report of the recent meeting of the American Neurological Association (August 7th, p. 165, top of second column), I am credited with having "found alcohol to answer all the requirements for the purpose of microscopical examinations" of the human brain. I am sure that I was very careful to say *macroscopical*, because, as stated by me, in *The Medical Record*, February 23, 1884, p. 207, histologists differ respecting the neuro-histological efficacy of alcohol, and I am not prepared to affirm its sufficiency, although I anticipate much when it is properly combined with a low temperature. Since the error is very likely to occur, excepting where, as on p. 142 of THE NEWS, the employment of both *microscopic* and *macroscopic* in the same paragraph protects the latter from the interference of some printer or proof-reader whose "little knowledge" is, in this case, really "dangerous," permit me to suggest that *macroscopic*, as a technical synonym of *gross*, *naked-eye*, etc., be replaced by *megascopic*, which is given by the later dictionaries, has been used by Spitzka, and some other anatomists, and cannot be mistaken for any other word.

BURT G. WILDER, M.D.

ITHACA, N. Y., September 4, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 7 TO SEPTEMBER 13, 1886.

WAKEMAN, WM. J., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply for three months' extension, to take effect when his services can be spared in the Department of the Platte.—*S. O. 207, A. G. O.*, September 6, 1886.

WALES, PHIL. G., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply for an extension to November 5, 1886.—*S. O. 70, Division of the Pacific*, August 31, 1886.

BANISTER, WM. B., *First Lieutenant and Assistant Surgeon* (recently appointed).—To report by letter to the Commanding General of the Department of Arizona, for assignment to duty.—*S. O. 208, A. G. O.*, September 7, 1886.

WALKER, F. V., *First Lieutenant and Assistant Surgeon.*—Assigned to temporary duty at Fort Adams, Rhode Island.—*S. O. 131, Division of the Atlantic*, September 8, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING SEPTEMBER 11, 1886.

WOODRUFF, C. E., *Assistant Surgeon.*—Ordered to Receiving Ship "Vermont," October 4, 1886.

ATLEE, L. W., *Assistant Surgeon.*—Detached from the "Vermont," and ordered to the "Quinnebaug," per steamer of 25th instant.

BOGERT, E. S., *Medical Inspector.*—Detached from the "Trenton," and placed on waiting orders.

FEREBEE, N. McP., *Surgeon.*—Detached from the "Trenton," and placed on waiting orders.

BIDDLE, C., *Passed Assistant Surgeon.*—Detached from the "Trenton," and placed on waiting orders.

SCOTT, H. B., *Assistant Surgeon.*—Detached from the "Trenton," and placed on waiting orders.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

ON AZOTIZED ALIMENTS.[1]

A Lecture on Hygienic Therapeutics.

By PROFESSOR DUJARDIN-BEAUMETZ,
OF PARIS, FRANCE.

GENTLEMEN: In a previous lecture we have considered the complete aliments—*i. e.*, foods which, by the proper association of their primordial alimentary principles, suffice for all the needs of nutrition. To-day we shall take up the complex aliments, a subject of much vaster extent, for man, being omnivorous, the variety of foods which he employs for his sustenance is very large.

First in order come foods from the animal kingdom. These constitute the azotized aliments *par excellence*, and comprehend meats, fish, mollusks, and crustaceans.

As for aliments of vegetable origin, we shall study successively cereals, vegetables, and fruits. Fatty foods present three divisions: fats, oils, and butter. Lastly, beverages are divisible into water, aromatic beverages, and spirituous beverages. The following table gives a summary of these divisions:

Complex aliments	Azotized aliments	Meats.
		Fish.
		Mollusks.
		Crustaceans.
	Vegetable aliments	Cereals.
		Vegetables.
		Fruits.
	Fatty aliments	Oils.
		Fats.
		Butter.
	Beverages	Water.
		Aromatic beverages.
		Alcoholic beverages.

Before entering upon the study of each of these divisions, I must say a few words about nutribility and digestibility.

If the first of these terms is easy to define, and means simply the nutritive value of the aliment, being estimated by the quantity of reparative forces which the aliment furnishes, it is not so with digestibility—and of all the definitions which have been given of this word the best is that given by Trousseau, in one of his theses: "The most digestible food is that which furnishes to the economy the largest quantity of reparative elements while demanding the least labor on the part of the digestive organs."[2]

Numerous have been the experiments made to determine the relative digestibility of foods. To mention only those practised on man, some have taken advantage of fistulous openings made in the stomach, the result of accident or surgical operation, as in the case of Beaumont with his Canadian, Alexis St. Martin; of Charles Richet with Marcellin; of Herzen of Lausanne, with Henri Baud. Others, as Londe, Lallemand, and Braune, have made their observations on patients that were the subjects of artificial anus situated in some part of the intestinal canal more or less distant from the stomach. Others, like Goss, of Geneva, have profited by the faculty which they possessed, of vomiting at will; still others, like Leube, have made use of the operation of lavage of the stomach for purposes of experimentation.

All these physiologists aimed to see with what rapidity a substance introduced into the stomach will disappear from the digestive tube. But from the fact that certain aliments when ingested by the mouth rapidly traverse the alimentary canal, it does not follow that they are speedily digested; it is, above all, necessary that they shall yield to nutrition the primordial alimentary principles which they contain. The state of cohesion of foods has a great deal to do with their digestibility; the feebler this cohesion, the easier of digestion is the substance. This explains why it is that the flesh of young animals is more digestible than that of old—*i. e.*, veal than beef, chicken than old fowl. We see, also, why it is that meat-powders, by reason of their state of minute division, are more readily assimilated than meat. We also understand from this fact the necessity of mastication, and how it is that when persons are deprived of their teeth they are likely to become dyspeptical. This is what you will often observe in old people, and in people who eat too rapidly. Mialhe considers imperfect mastication as the most frequent cause of indigestion. I am inclined to think that he is not far from right, and will show you how you can easily remedy this evil in certain cases of dyspepsia by means of special instruments.

I place before you two of these apparatuses, called *meat pulpifiers*, or *pulverizers*, which are of great service in these forms of dyspepsia. They are both of Collin's invention. One is designed to reduce to pulp a great quantity of raw meat. The other is an instrument for the table, which is applicable to cooked meat. I shall say but little about the first of these apparatuses, which, despite the ease and thoroughness of its working, is too costly for ordinary use. The other instrument, called the *table pulpifier*, is a very simple and convenient one. I have ordered it in a great many cases, and it has always given good satisfaction. As you see, it is a veritable meat shearer. (Fig. 1.)

You place the piece of roasted meat in the open part of the apparatus, and cover it with the movable lid; you close the instrument with your left hand, and with your right you work back and forth the handle of the mobile lid, and in a few seconds you have in your plate a meat-pulp of exceeding fineness, which has lost nothing of its aroma or savor.

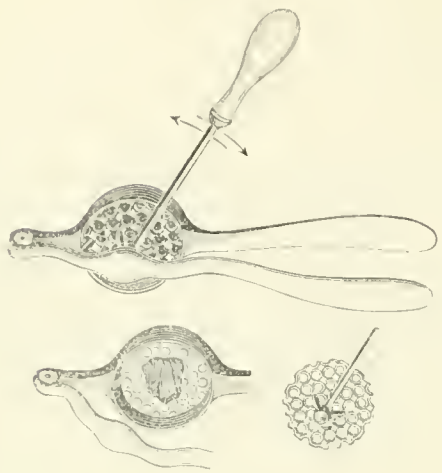
The other instrument has been modified by Galante, under the direction of Debove, from an American apparatus in use by pork-butchers. It is a very handy instrument, easily taken to pieces and cleaned, and acts

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

[2] Trousseau, Thèse de Concours, 1838.

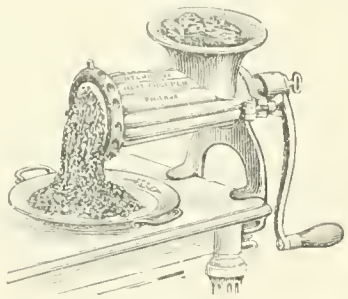
equally well on both raw and cooked meats; with cold boiled meat it produces a fine meat powder, with raw

Fig. 1.



meat, a homogeneous pulp. You here see the ease with which it works, and how perfectly the meat which enters at the fnnnel is converted into pulp. (Fig. 2.)

Fig. 2.



I cannot too highly recommend these instruments whenever you have to do with dyspepsia from imperfect mastication, or the so-called atonic dyspepsias; you will by this means favor the peptonization of albuminoid aliments and render them more assimilable.

Nutribility and digestibility rarely go together. We may even say that there is generally opposition between the two terms, the most digestible foods being ordinarily the least nutritive. Thus, fat, which plays so prominent a reparative part in our economy, is one of the alimentary principles the dissociation and assimilation of which are the most slow and difficult. Fatty aliments are very nutritious, but of little digestibility, and you will find sufficient confirmation of this fact in the details into which I am going to enter *à propos* of the different complex aliments.

But I shall now in this connection acquaint you with the results of some very curious experiments recently made by Bikfalvi. This physiologist in operating on dogs, and in employing the old method of Spallanzani, which consists, as you know, in making animals swallow little bags containing alimentary substances, has shown that in the dog the following quantities of certain aliments were digested in the space of two hours:

Uncooked casein	25	per cent.
Cooked white of egg	48	"
Uncooked cervical ligament	49.5	"
Uncooked liver	52.5	"
Uncooked kidney	55.33	"
Cooked beef	58	"
Raw unstriped muscular tissue	68.5	"
Raw beef	79.5	"
Raw hyaline cartilage	81	"
Raw fibrin	97.5	"
Uncooked pulmonary tissue	99.5	"
Raw tendons	99.5	"

Hence Bikfalvi concludes that gelatinous substances are the most speedily digested in the stomachs of carnivora. But these substances, if they are very digestible from the point of view of the stomachal digestion, furnish a very small sum of reparative elements to nutrition.

I pass now to the study of foods derived from the animal kingdom; we have divided them, as you know, into meats, fish, crustaceans, and mollusks. Do not expect of me a complete study of the various kinds of meat, and what I have here to present will be in the form of a brief summary.

Here is the analysis of a fillet of beef, according to Berzelius. You see the prominent part which water has in its composition. I shall return to this point when I come to speak of meat powders, as compared with raw meat, the former in equal bulk being much the more nutritious.

Muscular fibrin	16
Albumen	2
Gelatine	2
Osmazome and alkaline lactates	3
Water	77
	100

Cast your eyes over the following table borrowed from Moleschott. It gives you the centesimal composition of the different meats:

	Beef.	Veal.	Pork.	Venison.	Birds in general.
Soluble albumen and hæmatin	2.25	2.27	1.63	2.10	3.13
Musculine and like principles	15.21	14.30	15.50	16.68	17.13
Substance gelatinizing by heat	3.21	5.01	4.08	0.50	1.40
Fats	2.87	2.56	5.73	1.90	1.95
Extractive matters	1.39	1.27	1.29	2 52	1.92
Creatine	0.07	.. ...	.....	.....	0.20
Ash	1.60	0.77	1.11	1.12	1.30
Water	73.39	73.75	70.66	76.17	72.98
					100.00

The nutritive value of these meats is estimated by the quantity of musculine which they contain. This is almost equal for all the meats, oscillating between 14 and 16 per cent. As the fat was removed from these meats prior to analysis, we have not here exactly their nutritive value, for in this respect pork should have the first place, which, in the table, is assigned to venison. The latter meat is especially rich in nutritive elements, from the fact that it is not deprived of its blood when slaughtered, as is the case with the domestic animals, and this circumstance explains why game is so much more nourishing than butcher's meat.

I ought here to make a special mention of horse-flesh, which is extremely nutritious, and in respect of its nutritive value resembles venison. The consumption of this meat increases every day, as you can judge from the following table, which gives the number of horses sold for food in the shambles of Paris during the last ten years.

Years	Number of horses butchered for food.
1876	8,713
1877	9,908
1878	10,800
1879	10,081
1880	8,602
1881	8,684
1882	10,365
1883	12,267
1884	14,432
1885	16,137

I can but commend this extension given to the consumption of horse-flesh, which is a very nourishing meat, and renders great service to the poor population of our large cities.

Meats are prepared in a thousand ways, and the question has long been discussed whether cooking adds to their nutritive value. This question seems to-day to be decided, and if cooking does not augment the nutritiousness of meats, it nevertheless add to their digestive value by the appetency which it excites in persons who make use thereof. I will explain :

The primitive man used to eat raw meat, but as soon as he discovered fire, cooking came into fashion. The Troglodytes, the prehistoric men of Vezère, ate roasted meats, and we have the proof of this in the bones dug up at the entrance of their caves. This preference for cooked meats is due to the agreeable odor, and to certain products, such as osmazome, which are formed during cooking, and which constitute an aroma which promotes a more abundant secretion of gastric juice.

The popular saying, "one's mouth waters at the sight of a good meal," is absolutely conformable to the data of physiology, and we have here a phenomenon of reflex origin, which takes place whenever we see or smell savory meats. The salivary secretion is not the only one which is augmented under such circumstances; there is also a hypersecretion of gastric juice, as is noticed in persons who are subjects of a fistula of the stomach. This reflex complexus constitutes what has been described under the name of *appetency*, a condition which is not realized in the case of raw meat, which is not agreeable to taste, or sight, or smell, and is repugnant to most patients.

At the same time, raw meat has rendered and still renders us great service from a therapeutic point of view, and since first Weiss of St. Petersburg showed us all the advantages which we might derive from this kind of food in affections of the stomach and intestines, it has come into general use, not only in diarrhœa and certain forms of dyspepsia, but even in consumptive complaints, and, in particular, in pulmonary tuberculosis, where it has proved to be an excellent nutrient and restorative agent. Hence it is that the modes of preparation of raw meat have been multiplied.

With regard to this aliment, the most appropriate form for its administration to young children is the combination with fruit jelly, whether of currants or prunes, as in Trousseau's famous *Conserve of Damas*, which he prescribed so often in infantile diarrhœas; such a mixture is not, however, so suitable for adults, hence other expedients have been resorted to to render the food palatable. Some propose to administer it in little boluses about the size of bullets, a great many of which are to be swallowed during the day, or the raw meat is incorporated with broth, or in a kind of porridge, called by Laborde, *medicinal tapioca porridge*. To prepare it, you incorporate with a thin and well-flavored porridge of tapioca from one to two ounces of raw beef; you have thus a mixture which resembles, by its color, tomato soup, and is quite agreeable to the taste ; you can also combine the raw meat with mashed eggs, potato stew, or spinach.

But whatever be the procedure adopted, it is necessary that the meat shall be reduced to a very fine pulp, and for this purpose you can make use of a simple knife, or of the special apparatuses of which I have just spoken.

As you are well aware, the ingestion of raw meat may be a cause of tapeworm in the human subject, and doubtless the frequency of the unarmed tænia of late years is due to the use of raw meat; therefore, when Debove proposed to substitute meat-powder, there was a general disposition to accept the substitution.

I cannot, in this place, repeat what I have many times said as to the preëminent utility of meat-powders, both in my Clinical Therapeutic lectures and in my *New Medications*.[1] The advantages of these powders result from that molecular state which permits their easy peptonization, and from their special nutritiousness, since they are deprived of the 77 per cent. of water which fresh meat contains. Quite recently, Poincarré has taken up again this question of the nutritive value of meat-powders, and the conclusions which he has deduced from his experiments are contradictory to the results which Debove and I have obtained, and, I believe, to his own researches.[2]

Poincarré's experiment consisted in taking three dogs and subjecting them during equal and alternate periods, at one time to the ordinary meat-diet, at another to a diet of bread soaked in plain water, at another to a diet of meat-powder, at still another to a mixed diet of meat-powder and bread; successive weighings enabled him to note the results obtained. These results were as follows: the meat-powder, while possessing a nutritive value superior to that of bread, even when accompanied by broth, was inferior to fresh meat. But Poincarré takes the pains to tell us that the dogs loathed the meat-powder, and that it was only when driven to extremities of hunger that they would eat it. So that, for the experiment to be a fair one, he would have been obliged to perform forced feeding, in which event he would have seen the incontestable advantage of meat-powder, an advantage which no one to-day disputes. The results which Debove has witnessed, those recorded in the thesis of my pupil, Pennel, those of Broca and Wins, and those which I have inva-

[1] Diseases of the Stomach and Intestines Wm. Wood & Co) p. 38. New Medications (G. S. Davis), chap. iii.

[2] Poincarré, Experimental Researches on the Nutritive Value of Meat Powders; Annales d'Hygiène, 1886.

riably obtained, have recently been confirmed by Peiper, at the clinic of Greifswald.

If the dog loathes the powder of meat, it is the same with man, and it is only by artifices that we can render this aliment acceptable. These artifices consist, as you know, in incorporating the meat-powder with chocolate, or in giving it in the form of meat-grog, and which is made in the following way: Place in an empty bowl a couple of tablespoonfuls of meat-powder, add one or two tablespoonfuls of old rum or Bourbon, and half a pint of milk or water, sweetened sufficiently.

The fabrication of meat-powder is, to-day, carried out on a large scale; some of these preparations are peptonized before being delivered to the market. You can easily make it yourself if you prefer, by taking a certain quantity of boiled meat, cutting it into little pieces and drying it thoroughly by a water-bath; the desiccated product is then reduced to a powder in a coffee-mill, or in Galante's apparatus. These meat-powders do us excellent service in forced alimentation, as I shall hereafter have occasion to show you.

There has been much difference of opinion as to the alimentary value of broth, some denying its nutritiousness, which others persist in affirming. When you glance over the following analysis by Chevreul, you will see that broth by itself is of little nutritive value, containing 98 per cent. of water, and only 1.6 per cent. of organic matter:

Water	985.600	per 1000.
Solid organic substance dried in vacuo at 20° C.	16,917	28 per 1000.
Soluble salts, chlorides, phosphates, and sulphates of potash and soda	10,720	
Phosphates of magnesia and lime (insoluble, or but slightly soluble)	0.539	

Hence, from this point of view, we might affirm that soup is not nutritious, but, as Schiff has shown, its *rôle* is quite different. Soup is a peptogenous substance which increases the secretion of gastric juice, and the experiments of Herzen of Lausanne are, in this respect, decidedly confirmatory of those of Schiff. By experiments made on a man who was the subject of a gastric fistula (Herzen, *Stomachal Digestion*, Lausanne, 1886), the former obtained the following results, which put in clear light the value of "peptogens" in digestion.

Duration of the digestion.	Percentage of albumen digested.	
	Without peptogens.	With peptogens.
One hour	2.33	12
Two hours	23.66	45
Three hours	51.00	76

You know that dextrine, like broth, possesses these peptogenous properties. We have here the scientific justification of a common culinary custom of adding bread to broth, and particularly toasted bread, which, by the presence of dextrine, augments the peptogenous properties of the broth. It is on the same principle that soup is an excellent preparation for the meal that is to come, as it augments the secretion of gastric juice necessary for digestion.

I shall not here take up the various formulæ which have been prepared for making broth. At the same time, as you will often be consulted as to the proportions respectively of meat and of water to employ, I will give you a few suggestions. For a quart of water the quantity of meat should vary between half a pound and a pound, according as meat with bones or without bones is used. The following is the formula of our hospital broth:

Take of

Raw meat freed from bones	1 kilo.
Water	4 litres.
Fresh vegetables	400 grammes.
Common salt	10 grammes.

In England great use is made in the hospitals of beef-tea, which is made in the following way: Take one pound of beef freed from all fat, add its own weight of water and boil for several minutes, then strain with compression; add salt and other seasoning which may be deemed necessary, the taste of the product being always insipid.

Lastly, we make great use of a kind of broth called "American bouillon," which is of considerable nutritive value, and is made as follows: Place in an iron kettle alternate layers of meat and of vegetables, cover the pot, and subject the whole, without the addition of water, to prolonged cooking over a hot water-bath; at the end of six hours or so, you strain off the contents of the kettle, and you thus obtain a true meat-jelly, which is very palatable and nourishing, and which you may administer by itself, a small cupful at a time, or dissolved in ordinary broth.

I shall have finished what I purposed to say about meats, after making a brief allusion to blood.

Taking too literally the assertion in Leviticus, "The life of all flesh is the blood thereof," many have thought that blood must be an exceedingly nutritious food, and that it might be advantageously applied to the treatment of a great number of affections, and, in particular, anæmia and all wasting diseases. Various ways have been proposed for thus utilizing blood as food: some have recommended that the blood shall be drank just as it flows from the living animal, and hence it is that we see at our slaughter-houses, every morning, great numbers of people flocking there to drink the warm blood of the animals as they are killed. Others, as Paul Bert, Regnault, Guerder, and Le Bon, have counselled desiccated blood, and have made thereof powders which are now in use, like the meat-powders.[1] In Italy, Emilio, of Naples, has given the name of *trefusia* to this powder of dried blood, and he has obtained from it good effects as a food and as a medicament. Still others, as my pupil, Deschiens, have extracted from blood the coloring part of the globules, the hæmoglobin, and have made preparations of it, which you have seen used to advantage in my hospital.

As an exclusive aliment, blood is absolutely insufficient, and the experiments of Magendie and of Payen have shown that, despite the ingestion of 1000 grammes of blood per day, their dogs succumbed to starvation

[1] Guerder: On the Use of Blood powder in Forced Alimentation, Therapeutic Gazette, Feb. 1884; D. Emilio, Trefusia, Naples, 1886.

about the twenty-fifth day when fed on blood alone. I recognize, however, that in the treatment of anæmia certain of these preparations, and in particular those of hæmoglobin, are perfectly indicated, but here it is not as a food, but as a medicine, that such preparations do good.

Meats are subjected to the action of the gastric juice, and when this secretion is not sufficient to peptonize them, the work is completed by the pancreatic juice. Richet has given us a good description of the action of gastric juice on the muscular fibril: First, there is imbibition, then dissociation of the fibrils, rupture of the sarcolemma, and finally, the myolemma itself is attacked and converted into fibro-peptone. The portions which escape the action of the gastric juice pass into the intestine, and there undergo the action of the myopsin, which completes the work of peptonization; and if the meat does not contain too much of foreign substances, such as tendons and cellular fibres, the whole passes into the circulation in the state of peptone, leaving very little waste.

Schmidt-Mulheim has studied this question of the residue which albuminoid substances leave when they are digested. He took horse-flesh, well freed from fat and from tendons; this meat was hashed, weighed, and the nitrogen in it was estimated; it was cooked a few minutes; it was then fed to a dog which was killed at the end of a certain time; the contents of the stomach and intestine were then analyzed with the following results:

	Dogs killed after			
	1 hour.	2 hours.	4 hours.	12 hrs.
Stomach dissolved:				
Albumen	2.26	1.79	2.08	0.04
Peptone	3.08	3.65	3.31	0.08
Meat not attacked	50.38	24.49	25.92	0.12
Intestine dissolved:				
Albumen	0.48	0.13	0.43	0.20
Peptone	0.51	0.31	0.49	0.82
Meat not attacked	1.91	1.64	1.91	1.93
Meat ingested (calculated as albumen)	61.15	51.01	65.81	61.70
Albumen absorbed	2.40	18.48	31.19	58.51

These azotized substances are eliminated in the form of urea and uric acid. I cannot pursue this subject further now, requiring, as it does, certain details which will more properly come under the head of superalimentation, and I pass on to the second group of azotized aliments, namely, that of fishes.

From the point of view of its composition, fish resembles meat, and it may be affirmed that its nutritive value is nearly the same. In my *Diseases of the Stomach and Intestines*[1] (page 26), I have given Prof. Almen's table, which shows that, as compared with beef, the flesh of fish is almost as rich in protein matters. The following table from Moleschott shows the similarity which exists between the different white meats, chickens, birds, and fishes:

	Chicken.	Birds in general.	Carp.	Salmon.
Soluble albumen and hæmatin	3.03	3.13	2.93	4.34
Musculine and the like, matter gelatinizing by boiling	16.69	17.13 1.40	10.21 2.02	10.96
Fat	1.42	1.95	9.84	4.79
Extractive matters	0.94	1.92	1.45	1.78
Creatine	0.32	0.20	.....	.....
Ash	1.38	1.30	2.00	1.26
Water	76.22	72.98	78.54	76.86

[1] American edition.

Fishes are divided, from a nutritive point of view, into three groups: fishes with white meat, such as the whiting and the sole; fishes with yellow meat, like the salmon; and fishes with fatty meat, like the eel. Here, too, as in the case of meats generally, it is the fatty meats that are the most nutritious, while they are, at the same time, the least digestible.

The great nutritive value of fish explains why it is that entire populations are able to subsist on this food alone. This ichthyophagy has its advantages and disadvantages; it has been maintained that it predisposes to diseases of the skin, and, we see, even to-day, the school of St. Louis exclude all fish from the dietary of individuals affected with, or predisposed to, cutaneous diseases, while the school of Hebra is much less rigid in this respect, and here it doubtless has reason on its side.

There is no scientific evidence that an exclusive fish diet favors affections of the skin, and if the Norwegians are notoriously subject to leprosy (*spedolskeld*), this is due not to the fact that they live on fish, but to their filthy habits, their utter neglect of the care of the skin, and the rank, greasy garments which they wear.

It has, also, been affirmed that fish, by reason of its richness in phosphorized compounds, augments the reproductive faculties in persons who make free use of this diet, and in support of this statement we are referred to the extraordinary fertility of fish-eating communities. You all know the Oriental story, cited by Brillat-Savarin, where some dervishes who had made a vow of chastity, and who had resisted the charms of a seraglio, and this, despite a full azotized diet, succumbed in an astonishing manner when subjected to a regimen composed exclusively of fish and oysters. For my part, I do not believe in these special properties attributed to a fish diet, and if the populations of our sea coasts are extraordinarily prolific, this is due to other causes than those supposed. Equally unfounded is the notion that piscatorial food favors the predominance of one sex over another, a predominance which Balzac has expressed in the following words: "Salt water fish give girls, butcher's meat produces boys." There are no statistical data in support of this view.

Oysters constitute a very digestible food, and this is due largely to the fact that the "dainty" part of the oyster—the eatable portion—is composed almost exclusively of the liver. The mere crushing of the hepatic parenchyma by the teeth brings the contained glycogen in contact with its digestive ferment, the hepatic diastase, so that the substance of the oyster becomes self-digesting, imposing but little work on the digestive tube. But if its digestibility is great, its nutritive value is feeble. Payen has, in fact, shown that a dozen oysters, weighing 1410 grammes, give in nutritive substance 111.6 grammes, representing 2.3 grammes of nitrogen, or one-tenth of the daily ration of a man, so that ten dozen of oysters would be needed to furnish the azotized elements of a day's alimentary supply.

Payen has also analyzed the integral water of oysters, of which some persons are so fond, and he finds it different from ordinary sea-water in being albuminous, containing 0.86 per cent. of nitrogen. He therefore concludes that oyster-water may be useful as a nutrient, His analysis is as follows:

	First analysis.	Second analysis.
Water	95.38	95.71
Salts (by incineration)	3.02	4.24
Azotized organic substances	0.56	4.24
Organic non-azotized substances	0.52	4.24
	100.00	100.00

[In some parts of the world, and in particular on the coasts of New England, the clam abounds in the flats of river-mouths which are every day overflowed by the tide, and in these localities this little bivalve forms an important article of food. The esculent properties of the clam resemble those of the oyster. Clam-water is an admirable albuminous beverage, suiting the weakest stomachs, and being often tolerated when no other nutrient is borne.]

The mussel is also a bivalve mollusk much used for food. From the point of view of its richness in nitrogen, it is inferior to the oyster—nor is this all, the mussel is likely to contain a poisonous principle.

The danger of poisoning from mussels has given rise the last few years to some very interesting researches.

Brieger, more successful than Salkowski, has isolated a toxic principle, to which he has given the name of *mytilotoxine*, and which has the following composition: $C_6H_{15}NO_2$. He considers this toxic principle as belonging to the group of ptomaines, and believes that these ptomaines form in the liver of these mollusks. Schmidtmann, Virchow, and Salkowski have regarded this shell fish as having a curarizing action, and Langgaard has shown that one of the most powerful antidotes for this toxic agent is caffeine.

By the side of these lamellibranchiate mollusks of the genera Ostria and Mytilus, we must place a gasteropod mollusk, a land snail, to which has been given the name of *poor man's oyster*. I refer to the *Helix pomatia*, or the common snail of the vines. This snail is not only employed for food, but has been supposed to be of use medicinally.

Payen has given us a very complete analysis of the eatable portion of this mollusk, which would seem, from a nutritive point of view, to be superior to the oyster and mussel. The table is as follows:

	Oyster.	Mussel.	Snail.
Water	80.385	75.74	76.17
Nitrogenous matter	14.010	11.72	16.25
Fatty matter	1.515	2.42	0.953
Salts (by incineration)	2.695	2.73	2.925
Non-azotized substances	1.395	7.39	4.602
	100.000	100.00	100.000

As for the therapeutic properties, and in particular, as for the curative virtues of the snail in bronchitis and in consumptive affections of the chest, I do not know on what scientific basis such properties can be affirmed. Figuier has, indeed, pretended that the snail contains a sulphuretted principle, which he has described under the name of *helicine*, but there is nothing to confirm this statement. However this may be, we have in this mollusk a popular remedy, employed especially in the country, and administered with sugar, in the form of confections or as a broth. This snail broth is made in the following way:

Take of

Edible snails	120 grammes.
Water	1000 "
Capillary leaves	5 "

The snails are placed in the water, which is subjected for two hours to the heat of a water-bath, and the capillary leaves are added and infused for a short time.

The confections, mucilages, and syrups are made by rubbing up the snails in a mortar along with five times their weight of sugar; the resulting liquid is reduced in a water-bath to the desired consistency.

By the side of these mollusks we may place certain crustaceans, represented by the cray fish; the lobster, and the spiny lobster (*langouste*).

Payen has given us a very good analysis of the various eatable parts of the lobster, which shows the considerable nutritive value of these podopthalmian crustaceans, of which the cray fish is the type. If these crustaceans are very nutritive, they are also very indigestible, and they favor, to a certain extent, the appearance of erythematous eruptions, and, in particular, of urticaria in the gouty and rheumatic, hence they should be eaten with moderation.

	Meat.	Soft part	Eggs.
Water	76.618	84.318	62.983
Azotized matters	19.170	12.140	21.892
Fatty matters	1.170	1.144	8.234
Salts (by incineration)	1.823	1.749	1.998
Non-azotized matter and loss	1.219	0.354	4.893

From this analysis we see the great nutritive value of the eggs of the lobster. This remark is also applicable to the eggs of fishes as well, and the spawn of certain fishes, as that of the sturgeon, constitutes a very nutritious aliment, which goes by the name of *caviar*.

I shall finish this lecture by a brief allusion to the edible reptiles, which consist of the tortoise and the frog.

Despite the sneers of the English, who call us a nation of frog-eaters, it is a fact that we make but a very moderate usage of the *rana esculenta*, which really hardly deserves its epithet of *esculent*, for its nutritive value is very feeble, and inferior to that of our lighter meats. As for the turtle, the consumption of this reptile is also very limited; at the same time, Payen has shown that the flesh of the turtle contains in every 100 parts, 16.25 of nitrogenous matters representing 2.5 of nitrogen.

I have now concluded the study of the azotized substances which serve for the food of man, and whose sum constitutes the azotized regimen. The advantages and disadvantages of this regimen will be considered when I come to speak of alimentary rations. In the next lecture I shall take up the subject of vegetable diet and of fatty foods.

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ORIGINAL ARTICLES.

CASES OF MILK-POISONING, WITH REMARKS ON TYROTOXICON.

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INQUIRIES concerning the cases of illness at Long Branch due to noxious milk have been so very numerous and solicitous, and the interest manifested in the subject has been so great, that we feel warranted in publishing the following account of the investigation carried out to ascertain the cause of the trouble.

It is seldom that the investigator has the opportunity to trace to its source the milk or other food that has caused sickness, but we have, in these cases, been very fortunate in being able to follow every step in the management of the milk, from the farm to the consumer. In similar cases of poisoning by cheese and ice cream which have been investigated by Vaughan and others, although chemical analysis has revealed the probable cause and the toxic substance has been isolated, some link in the chain of evidence has been wanting. But the history we are now to relate seems unique, because every portion of the evidence is before us and we are able to demonstrate what the injurious material really is, besides offering other proof as to the possible cause of the formation of this substance.

On August 7th twenty-four persons at one of the hotels at Long Branch were taken ill soon after supper. At another hotel, on the same evening, nineteen persons were seized with the same form of sickness. From one to four hours elapsed between the meal and the first symptoms. The symptoms noticed were those of gastro-intestinal irritation, similar to poisoning by any irritating material—that is, nausea, vomiting, cramps, and collapse; a few had diarrhœa. Dryness of the throat and a burning sensation in the œsophagus were prominent symptoms.

While the cause of the sickness was being sought for, and one week after the first series of cases, thirty persons at another hotel were taken ill with precisely the same symptoms as noticed in the first outbreak.

Drs. S. H. Hunt and Williams, of Long Branch, attended all the patients on both occasions. Dr. Hunt kindly furnishes the following account of the cases:

"The symptoms were very similar to those of any case of gastro-intestinal irritation. I was impressed with this fact although there was an unusual absence of diarrhœa in many of the cases. A few would have several active movements and no vomiting, the poison or cause being thus immediately removed; while in many cases it produced violent emesis which was followed by collapse and failure of the heart's action. Both occurred in a few instances, but the rule was the persistent and obstinate nausea and vomiting, with a tendency to exhaustion and collapse as seen in cholera. The convalescence and recovery were prompt, and in a few hours all were in their usual health, and no untoward symptoms followed the attack." The remedies employed were those usually indicated in such cases, such as antacids, stimulants, and in a few instances small hypodermatic injections of morphia were administered.

When the news of the outbreak was published one of us immediately set to work, under the authority of the State Board of Health, to ascertain the cause of the illness. The course of the investigation was about as follows:

The character of the illness indicated, of course, that some article of food was the cause, and the first part of our task was to single out the one substance that seemed at fault. The cooking utensils were also suspected, because unclean copper vessels have often caused irritant poisoning. Articles of food, such as lobsters, crabs, blue fish, and Spanish mackerel, all of which at times, and with some persons very susceptible to gastric irritation, have produced toxic symptoms, were looked for, but it was found that none of these had been eaten at the time of the outbreak. The cooking vessels were examined, and all were found clean and bright and no evidence of corrosion was presented.

Further inquiry revealed the fact that all who had been taken ill had used milk in greater or less quantities, and that persons who had not partaken of milk escaped entirely; corroborative of this it was ascertained that those who had used milk to the exclusion of all other food were violently ill. This was prominently noticed in the cases of infants fed from the bottle when nothing but uncooked milk was used. In one case an adult drank about a quart of the milk, and was almost immediately seized with violent vomiting followed by diarrhœa, and this by collapse. Suffice it to say that we were able to eliminate all other articles of food and to decide that the milk was the sole cause of the outbreak.

Having been able to determine this, the next step was to discover why that article should, in these cases, cause so serious a form of sickness.

The probable causes which we were to investigate were outlined as follows: (1) Some chemical substance such as borax, boric acid, salicylic acid, sodium bicarbonate, sodium sulphate, added to preserve the milk or to correct acidity. (2) The use of polluted

water as an adulterant. (3) Some poisonous material accidentally present in the milk. (4) The use of milk from diseased cattle. (5) Improper feeding of the cattle. (6) The improper care of the milk. (7) The development in the milk of some ferment or ptomaine, such as tyrotoxicon.

At the time of the first outbreak we were unable, unfortunately, to obtain any of the noxious mik, as that unconsumed had been destroyed, but at the second outbreak a liberal quantity was procured.

It was soon ascertained that one dealer had supplied all the milk used at the three hotels where the cases of sickness had occurred; his name and address having been obtained, the next step in the investigation was to inspect all the farms, and the cattle thereon, from which the milk was taken. We also learned that two deliveries at the hotels were made daily, one in the morning and one in the evening; that the milk supplied at night was the sole cause of sickness, and that the milk from but one of the farms was at fault. The cows on this farm were found to be in good health, and, besides being at pasture, were well fed with bran, middlings, and corn-meal.

So far, we had been able to eliminate as causes diseased cattle and improper feeding, and we were then compelled to consider the other possible sources of the toxic material.

While the inspection of the farms was being made, the analysis of the milk was in progress. The results of this showed that no chemical substance had been added to the milk, that it was of average composition, that no polluted water had been used as a diluent, and that no poisonous metals were present. This result left us nothing to consider but two probable causes: improper care of the milk, and the presence of a ferment.

As to the former, we soon learned much. The cows were milked at the unusual and abnormal hours of midnight and noon, and the noon's milking—that which alone was followed by illness—was placed, while hot, in the cans and then, without any attempt at cooling, carted eight miles during the warmest part of the day in a very hot month.

This practice seemed to us sufficient to make the milk unpalatable, if not injurious, for it is well known that when fresh milk is closed up in a tight vessel and then deposited in a warm place, a very disagreeable odor and taste are developed. Old dairymen speak of the "animal heat" as an entity, the removal of which is necessary in order that the milk shall keep well and have a pleasant taste. While we do not give this thing a name, we are fully convinced that milk should be thoroughly "cured" by proper chilling and aëration, before it is transported any distance or sold for consumption in towns or cities.

This opinion is based on a study of the methods prevalent among experienced dairymen, who ship large quantities of milk to our great cities. The usual practice is to allow the milk to stand in open vessels, surrounded by ice or cold water, for from eight to twelve hours before transportation, and when placed on the cars it has a temperature of from 50° to 60°, and is delivered to the consumers in a perfectly sweet condition. The city of New York receives about 200,000 gallons each day from the surrounding country, and much of it brought in by the railroads has been on the cars for a time varying from six to twelve hours, yet we seldom hear of any of this milk undergoing the peculiar form of fermentation set up in the Long Branch milk. We may account for this by assuming that the proper care of the milk after it was taken from the cow, and the low temperature at which it was kept, have prevented the formation of any ferment; this opinion seems to be endorsed by all dairymen and managers of large creameries with whom we have consulted. They all agree in stating that milk maintained at a low temperature can be kept sweet and in good condition for many days.

We have dwelt on this branch of our topic somewhat extensively, because we are fully persuaded that the improper care of the milk had much to do with the illness it produced.

The results of our inquiry having revealed so much, we next attempted to isolate some substance from the poisonous milk, in order that the proof might be more evident. A quantity of the milk that had caused sickness in the second outbreak was allowed to coagulate, was then thrown on a coarse filter, and the filtrate collected. This latter was highly acid, and was made slightly alkaline by the addition of potassium hydrate. This alkaline filtrate was now agitated with an equal volume of pure, dry ether, and allowed to stand for several hours, when the ethereal layer was drawn off by means of a pipette. Fresh ether was added to the residuum, then agitated, and, when separated, was drawn off and added to the first ethereal extract. This was now allowed to evaporate spontaneously, and the residue, which seemed to contain a small amount of fat, was treated with distilled water and filtered, the filtrate treated with ether, the ethereal solution drawn off and allowed to evaporate, when we obtained a mass of needle-shaped crystals. This crystalline substance gave a blue color with potassium ferricyanide and ferric chloride, and reduced iodic acid. The crystals, when placed on the tongue, gave a burning sensation. A portion of the crystals was mixed with milk and fed to a cat, when, in the course of half an hour, the animal was seized with retching and vomiting, and was soon in a condition of collapse, from which it recovered in a few hours.

From these experiments with this material, we were able to identify it as *tyrotoxicon*, a substance discovered and described by Prof. Victor C. Vaughan, of the University of Michigan. Although much has been published during the past two months concerning this substance, it will not be unprofitable, in this connection, to review the statements of the chemist who first described it.

In the year 1883 about three hundred persons were taken violently ill after eating cheese, and Prof. Vaughan was requested by the Michigan State Board of Health to ascertain the cause. While engaged with this work, he discovered the substance which answered to the tests mentioned above, and which he called "tyrotoxicon" (cheese poison).[1]

[1] Ein Ptomain aus giftegem Käse. Zeitschrift für Physiologische Chemie, Band x. Heft 2, 1886.

During June, of this year, Prof. Vaughan was able to obtain this substance from ice-cream that had sickened some eighteen persons.[1]

We are now able, for the first time, to demonstrate this new substance in poisonous milk, thus endorsing the views of Vaughan, who stated in his report that, doubtless, it would be discovered in cases in which milk had caused sickness.

As to the chemical character of tyrotoxicon, we have little to say, for a sufficient amount for an ultimate analysis was not obtained by us. Vaughan says: "The circumstances under which tyrotoxicon develops require further study. As has been shown, it may develop in normal milk, kept in a clean bottle for three months; but it is evident that in some instances it appears much earlier." (In our cases it appeared in five hours.) "The production of this ptomaine is, in all probability, due either directly or indirectly to the growth of some micro-organism."

From a close analysis of the facts in the cases recorded in this article, we are of the opinion that the substance is allied, chemically, to butyric acid; that it is formed in the milk by fermentation; and that its formation may be prevented by keeping the milk at a low temperature; or by properly cooling the milk soon after it is drawn from the cow. It seems, also, important that the so-called "animal heat" be allowed to escape. Boiling may dissipate the poison from milk that contains it; this opinion is based on the fact that tyrotoxicon is changed and driven off at a temperature of 180° F.

Conclusions.—We are justified in assuming, after weighing well all the facts ascertained in the investigation, that the sickness at Long Branch was caused by poisonous milk, and that the toxic material was tyrotoxicon.

The production of this substance was no doubt due to the improper management of the milk—that is, too long a time was allowed to elapse between the milking and the cooling of the milk; the latter not being attended to until the milk was delivered to the hotel; whereas, if the milk had been cooled immediately after it was drawn from the cows, fermentation would not have ensued, and the resulting material, tyrotoxicon, would not have been produced.

ON THE TREATMENT OF PAINLESS FACIAL SPASM.[2]

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THE treatment of tic non-douleureux is very unsatisfactory. Erb[3] remarks that it is one of the most thankless problems of medical practice, and all authorities agree that therapeutic means are of but little use in the treatment of this most annoying condition. M. Francois, in an exhaustive article on "Facial Tic," in the *Edinborough Medical Journal*, vol. lxxv., speaks of the incurability of the disease. Even if a remedy is found which does check or control the spasms, it is more than probable that a relapse will occur at an early day.

A number of cases have been reported by different writers as cured, but what has helped one patient will be found utterly ineffectual with the next. Hammond speaks of having cured a case of facial spasm with the bromide of zinc and galvanism. Remak[1] has cured cases by galvanism applied to "pressure points" on the spine. But Althaus says that, in his experience, galvanism is without value, except in recent cases.

Chisolm[2] describes a case treated at Port Royal, in 1800, with "oxygenated muriate of potash," which was cured. After four months the patient had a relapse, but was again relieved by the same drug after other means had failed. He does not say how long the patient was under observation.

Various drugs have been spoken of favorably in the treatment of this disease, but I can find no reports showing that there are any cases known to have been cured for a length of time by any remedy. From this want of success with medicines, it has become necessary to resort to surgical means for aid. Erb states that neurotomy of sensory nerves is often followed by good results in mimetic spasm, even when no reflex irritation proceeds from these nerves, and quotes Romberg and Gräfe in this connection. Althaus also speaks of cases of facial spasm being usually cured by section of branches of the fifth. I have known blepharospasm to be cured for the time by section of the supraorbital nerve; but I do not know how long the relief lasted. In the case which I shall relate, resection of the infraorbital nerve was not productive of any good result.

Excision of branches of the fifth nerve for the relief of tic non-douleureux seems to have been practised for many years. Chisolm, in the paper quoted above, says "Is not this the disease described by Dr. Haighton (*Medical Records and Researches*, 1798), cured by the division of the fifth pair of nerves?" I cannot find, however, that it has been successful, except in cases of limited spasm, as, for instance, blepharospasm. In cases reported by Putnam and Godlee, the supraorbital had been fruitlessly divided prior to stretching of the seventh. In each of these, however, the relief from the stretching lasted but a few months.

Section of the facial nerve has been performed in some cases, but, of course, this is followed by complete paralysis of all the muscles supplied, which is permanent. In one case which has been reported, the twitching of the facial muscles did not cease after division of the nerve, although the paralysis was absolute. Dieffenbach[3] divided subcutaneously most of the muscles affected with spasm, in an inveterate case, and obtained a very favorable result.

The possibility of stretching the facial nerve naturally suggested itself after other nerves had been stretched with good results, and the operation was first done by Baum, for the relief of facial spasm, in 1878.[4] This case was very successful. The patient

[1] Report of Proceedings of Michigan Board of Health, July 12, 1886. THE MEDICAL NEWS, July 25, 1885, p. 111.

[2] Read before the American Neurological Association, July 23, 1886.

[3] Ziemssen's Cyclopædia, vol. xi. p. 312.

[1] Erb, op. cit.

[2] Annals of Medicine, Edinborough, 1801, vol. v. p. 402.

[3] Erb, op. cit.

[4] Keen, Annals of Surgery, vol. iv.

was cured for eight or nine months, and then had a slight relapse, but after two years she was comparatively free from the disorder. There have been, since Baum's operation, twenty others, the last of which being the following case:

Mrs. A. S., æt. forty-nine years, was sent to my clinic at the Orthopædic Hospital and Infirmary for Nervous Diseases, by her physician, Dr. Bartleson, on July 23, 1883. The following history was obtained. She is a native of England, is married, and has had ten children, nine of whom are living. Her mother died of dropsy, at the age of about fifty years, and her father died of inflammation of the stomach. When a child of six years, she had an attack of nervous trouble, which was in all probability chorea. She remembers but little about it, except that it lasted several months, and that she was scarcely able to walk. She recovered entirely, after coming to this country at about the age of seven. Her catamenia were established at sixteen years, and at about the the same time she had another attack of chorea. This affected the right side, and was of several months' duration. After getting well of this attack, she had excellent health, with the exception of more or less frequent attacks of migraine. She has lived in a malarious region, and has had intermittent fever several times in the past sixteen years. The menstrual flow has been regular, but she has had severe pain at each period. Her last child was born in 1880. The labor was easy and rapid, not lasting much more than an hour. Since this confinement the catamenia have become more frequent, and the flow has been profuse, at times excessive.

When her baby was about six months old she noticed one day slight quivering of the right under eyelid. In a day or two this became constant and more marked, and soon extended to other muscles of the right side of the face. In two or three weeks after the tremor began, she first had pain in the right parietal region. It was dull and continuous; but she had no pain in the brow or in the face. In two or three months she thinks that all of the muscles of the right side of the face, and some of the neck muscles were affected with the spasms. It became steadily more severe, and the pain in the head increased in intensity. At times she has been so worn out by the continual spasms of the face, that she was confined to bed.

About the time that the pain in the head began, she had pain in the right biceps. This lasted for about two years and made the arm weak and helpless.

Her general health remained fairly good, although she lost flesh and color.

On first coming under observation it was noticed that attempts at speaking brought on spasmodic twitching of all the muscles of the right side of the face. The mouth was drawn strongly to the right, the eye was closed, and the fibres of the platysma myoides twitched. The spasm would last from thirty seconds to about three minutes, and she said that it was not accompanied with pain. Pressure over the supra- or infra-orbital nerve did not check or keep off spasms, nor did pressure over the facial in front of the ear affect them. The sensation was not impaired. Hearing was good. The eye ground did not present any unusual feature. Emotions or excitement increased the twitching, and eating or talking would almost certainly bring on an attack. Season of the year seemed to exert no influence on the severity of the disease. She had had all of the teeth on the right side of the mouth extracted, but without relief.

I used a large number of therapeutic means with but little or no benefit. Conium when pushed to drachm doses of the fluid extract did control the twitching to some extent, but the effect seemed soon to wear out. Gelsemium was given and so was Cannabis indica. Quinine in large doses relieved the pain in the head somewhat, but did not help the spasms. Galvanism was used faithfully and intelligently by Dr. G. Betton Massey, the electrician to the hospital, but did not show any good effect. Blisters to the nucha, as advised by Anstie in epileptiform tic, were used without avail. Other drugs, as iodide and bromide of potassium, eserine, and nitroglycerine, were given with no perceptible result. Finally, at a consultation of the medical staff of the hospital, it was decided that stretching of the facial nerve would afford the best prospect of relief; but at the desire of our surgical colleagues it was decided to try first the effect of division of the infraorbital nerve. Accordingly, in June, 1884, Dr. T. G. Morton resected about half an inch of the right infraorbital. The result of this operation was diminution of the twitching and spasms for a few days, and the pain in the head became less; but in two or three weeks they were as severe as ever.

Another course of drugs and electricity was now pursued, but the patient's condition became worse. In the summer of 1885 she began to have pain in the back of the right thigh, in the course of the sciatic nerve, and in the calf of the leg. The muscles of the leg felt to the patient as if they were drawing and twitching, and there were often severe cramps of the calf muscles. All of the symptoms were intensified at the menstrual periods, which occurred every two or three weeks with profuse flow.

In March, 1886, I had a consultation with Dr. W. W. Keen, as to the advisability of stretching the facial nerve in Mrs. S.'s case. He agreed with me that it was desirable to perform the operation, and admitted the patient to the Woman's Hospital, where the nerve was stretched, on April 2, 1886. Dr. Keen reported the case at the meeting of the American Surgical Association, in May, 1886, and his paper is published in *The Annals of Surgery* for July. The following is his account of the operation:

"Began etherizing at one o'clock, Dr. Sinkler present and assisting. At 1.10 an angular incision was made, two and one-half inches long. The centre of the incision was at the apex of the mastoid process, passing upward behind the ear, and downward in a line parallel with the border of the sterno-cleido-mastoid muscle. Ligated the posterior auricular artery; the parotid was dissected and pushed forward until the prevertebral muscles and their aponeuroses were reached. A very weak current of electricity was then applied by a wet sponge to the cheek, and fine wire to various points in the wound, until the nerve was found. Immediately a spasm of the facial muscle followed the application.

The nerve was then laid bare. A hook was next passed under it, and the nerve stretched several times from the face outward, pulling the head to the right side. When the nerve was stretched, marked contraction of the facial muscles was seen. The force used was estimated at between four and five pounds. No more force was used, because a few fibres were felt giving way when an attempt was made to lift the head. Horsehair drainage was used, and four silver sutures were introduced. Complete paralysis of the facial muscle was noted after the stretching, and before she had recovered from the ether. Upon recovering consciousness, the patient remarked the absence of pain in the head. Before the operation, pulse 90, temperature 98.8°. After the operation, pulse 82, temperature 98.6°.

"A carbolized gauze dressing was applied, and the operation was completed at 1.50 P.M. At 6 P.M. complained of severe pain in the ear, which soon passed away. After operation there was complete paralysis of the facial muscles. The right eyelid did not close of itself.

"*April 3.* First day after operation, 6 A.M., pulse 77, temperature 99¼°. Paralysis of facial muscles not so marked as immediately after the operation. No pain in the head, but complaining of soreness in the leg. Wound was dressed at 2.30 P.M. Slight oozing was found on the dressing.

"*4th.* Second day, 6 A.M., pulse 85, temp. 98.6°. Took more nourishment. No pain in the ear. Leg and side still painful.

"*5th.* Third day, 6 A.M., pulse 85, temp. 98.7°. Eyelid nearly closed and facial muscles seem a little less relaxed than before. There has been no twitching of the facial muscles, platysma, or of the leg since the operation. Sat up for an hour.

"*6th.* Fourth day, out of bed. All stitches removed, and the horsehair drainage; a few drops of sanious discharge followed."

Dr. G. Betton Massey made an electrical examination on the tenth day after the operation. He found farado-contractility greatly weakened at this time, and on the seventeenth day it was totally abolished. The galvanic responses are tabulated below. Dr. Massey used great care in this examination, and eliminated all errors from changes in resistance by the use of a milliampère meter.

"It will be noted by a reference to the table, that the frontalis showed the serial changes indicative of the reaction of degeneration in a slight degree on the seventeenth day. This remained the same on the twenty-fourth, when a slight modal change, consisting of a slow, wave-like contraction, instead of a sharp, quick one, was noted. The orbicularis palpebrarum showed quantitative diminution of excitability on the tenth day, and serial changes on the seventeenth. The levator labii superioris showed slight serial change on the tenth day, which has increased since, amounting, on the twenty-fourth day, to more than a complete reversal of the normal figures. This was also true of the zygomaticus major, orbicularis oris, and levator menti, in all of which increasing serial change has been found, together with great modal alteration of contraction. The lower muscles of the face show greater change than the upper."

In the following table it will be found that the figures of the normal formula of each muscle are given. These were obtained by making an examination of the sound side of the face.

	Minimum contraction at		Remarks.
	Kathodic closure.	Anodic closure.	
Frontalis:			
Normal	1	1½	
10th day	1	1½	Slight modal change.
17th day	1½	1	
24th day	1½	1	
Orbicularis palbebrarum:			
Normal	½	1	
10th day	2½	3	Slight modal change.
17th day	2	1	
24th day	2½	1½	
Levator labii superioris:			
Normal	2½	3	
10th day	2½	2½	Modal change.
17th day	4	2	
24th day	3	1½	
Zygomaticus major:			
Normal	2½	3	
10th day	2½	3	
17th day	5	3½	Modal change.
24th day	2½	1½	Great modal change.
Orbicularis oris:			
Normal	2½	3	
10th day	2½	3	Slight modal change.
17th day	1½	1½	Great " "
24th day	1½	1½	" " "
Levator menti:			
Normal	2½	3	
10th day	2½	3	
17th day	1	1½	Great modal change.
24th day	1	½	" " "

Dr. Massey made a final electrical examination on the one hundred and ninth day after the operation, with the following results:

	Minimum contraction at	
	Kathodic closure.	Anodic closure.
Frontalis	1	1½
Orbicularis palpebrarum	½	1
Levator labii superioris	1½	2½
Zygomatics	2½	3
Orbicularis oris	1½	2
Levator menti	½	1

Showing a return to normal in several muscles. There was some response to the faradic current at this examination.

I examined Mrs. S. four weeks after the operation. There was then complete paralysis of all of the muscles supplied by the right seventh nerve. There was no twitching and no pain, and there had been none since the stretching of the nerve. Sensation was not impaired except on the posterior edge of the right ear. This was probably from the division of a cutaneous nerve by the incision made in the operation. The patient was in excellent spirits, and said she felt perfectly well. She was free from headache, and had no pain or twitching in the leg.

On June 18, ten weeks after the operation, the paralysis was beginning to disappear. The eye could be partially closed, and there was some power to draw the angle of the mouth to the right. There

was hyperæsthesia on the posterior edge of the ear, where there had been previously loss of sensation.

On July 19, fifteen weeks after the nerve stretching, there was scarcely a trace of the paralysis left. Mrs. S. reported that at the time of her last menstrual period she had a severe headache and felt slight quivering of the right lower lid. This lasted but a short time, and she has not experienced it since. She has had no pain in the head, and has had no return of spasms or cramps in the right leg, but still has some pain in the right thigh and calf.

Dr. de Schweinitz kindly examined the eyes and reported:

R. E. V. $\frac{15}{LXXX}$ with a $+ 3^{\circ}$ $\frac{15}{XXV}$.

L. E. V. $\frac{15}{L}$ with a $+ 1.75^{s}$ $\frac{15}{XL}$.

Excursion of eyeballs good in all directions. No muscular paralysis. Insufficiency of the interni 7°. Pupils react normally. *Ophthalmoscope, R. E.:* Small nerve, the lower edge slightly veiled by striated retina. Nerve color a little gray. Choroid extensively disturbed, and its pigment epithelium absorbed.

L. E.: Nerve larger. Similar striation of retina. Choroid more disturbed than in R. E. Pigment epithelium absorbed: and down and in from the disk one mass of choroidal pigment. Lymph sheaths along vessels marked. Hypermetropia 1.75°.

A uterine examination revealed a deep bilateral laceration of the neck of the womb. The lips were not everted or ulcerated. The depth of the uterus was three inches. The organ was in normal position and was not sensitive to the touch.

Dr. Keen has tabulated with great care all of the cases in which stretching of the facial nerve has been done. The tables which he has made are much more accurate and full than any which have heretofore been published. From these it will be found that there have been twenty-one cases of tic convulsif in which the facial nerve has been stretched. Of these twenty-one, complete relief from the spasmodic contractions has followed the operation in seven cases. In two of these the patients had been under observation two to three months, and in three the patients had been seen at periods varying from two to five years after the operation. One case was not seen after three days, and in my own case almost four months have passed since the operation, and there has been no return of the trouble except the trifling twitching of the lower lid referred to above.

Of fourteen cases, in three complete relief lasted only one week, and after that time in one the improvement continued for two years; but in the other two the benefit did not continue after the first week.

In five cases complete relief lasted from three weeks to four months. Of these, four continued better and one relapsed to the same condition as before the operation.

Finally, in six cases there was absolute relief for from four months to one year. Of these, improvement continued in three, and in the remainder the spasms returned with their former severity.

Of the whole number of cases there were but six in which it was reported that the patients relapsed to a condition as bad as that prior to the operation. There was not one case in which there had not been complete relief for a longer or shorter time. The shortest time that relief lasted was one week.

It is true that none of these cases was under observation long enough to make a thorough test of the value of the operation; and it is also true that a large number of the patients relapsed to a greater or less extent; but we know of no other means which has given relief in so large a proportion of cases. Of the half-dozen cases of tic non-douleureux which I find in the books at the Infirmary for Nervous Diseases, in not one was there absolute cessation of the spasms from any form of treatment used, and, as I have before shown, nearly all of the writers on the subject are unanimous in the opinion that treatment is without avail. It is for this reason that I feel that stretching the facial nerve is to be recommended for tic-convulsif. When we consider the small amount of risk and suffering in the operation, and the large degree of relief afforded by it, we would certainly be derelict in our duty to our patient in not performing it when other means have failed.

When I saw Mrs. S., four weeks after the operation, the right side of the face was entirely palsied. She could not close the right eye, and the corner of the mouth drooped. She assured me that, notwithstanding this condition, the relief from the twitching and pain was so great, that she would willingly remain as she was rather than have a return of the spasms.

I am inclined to believe that in this case the disease was peripheral in origin, from the fact of the two attacks of chorea which she had had early in life and from the influence of the menstrual periods on the convulsive twitchings.

Note.—I saw Mrs. S. on August 16th, four and a half months after the operation. The facial paralysis was entirely relieved, and there was not a symptom of the twitching.

A PRIMARY OPERATION FOR TORN PERINEUM AFTER EMMETT'S METHOD.

By FRANCES HATCHETT, M.D.,
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The patient, a primipara, was confined July 26, 1886. Perineum ruptured, the laceration, externally, extending to the sphincter ani muscle; internally, the tear extended along both sides of the posterior column of the vagina to the extent of an inch and a half. The stitches were introduced on each side of the column according to Emmett's directions, and the rest of the tear was united by three deep stitches knotted externally.

On the twelfth day the stitches were removed. union perfect. There was no deformity of the parts whatever. The case is interesting because the primary tear corresponded to the denudation made by Emmett, as represented in his diagram, in performing the secondary operation.

August 18, 1886.

THE REACTION AGAINST THE BACILLUS TUBERCULOSIS IN GERMANY.

By THOS. J. MAYS, M.D.,
of Philadelphia.

It is very exceptional that a new idea finds such general acceptance as that which greeted the discovery of the tubercle bacillus by Koch in 1882. It was not only new, but it threatened to revolutionize all existing notions of the causation and treatment of pulmonary consumption. It placed this disease in the contagious list, and the victims of the former were to be regarded as objects of suspicion, rather than of pity. The idea took root at once in Germany, and before very long had disseminated itself throughout the civilized world. Everybody was infected by it, so that Prof. Virchow recently said that it "not only swayed the ideas, but also the dreams of many old and of nearly all young physicians." It is very difficult to account for this phenomenal course of things, unless it was partly due to a feeling of weakness on the part of the members of the profession to cope with the destructiveness of the tuberculous malady; and hence they were ready to welcome anything which contained so much apparent "promise and potency of" renewed "life."

It must be admitted that the parasitic doctrine of the cause of tuberculosis is very beautiful and simple, but it unfortunately collides with too many well-established facts apparent to every practical observer. If it were true that consumption is a contagious disease, then it should conform with the laws which are known to govern contagious disease. This is not the case, for observation has settled beyond cavil, that it is not those who are most exposed to the disease who are most liable to it, which is in direct opposition to the behavior of contagious disease. Prof. Lichtheim, in the transactions of the second medical congress, which met in Wiesbaden in 1883, says that "it must be admitted that there are many facts which contradict the contagious nature of pulmonary phthisis. As a rule, intercourse with phthisical people is not attended with danger. We hospital physicians spend much time among such people. We have such confidence in the innocuousness of the disease, that we do not hesitate to mix healthy persons with them in institutions devoted to its treatment, and we must confess that this procedure is practically unattended by any unfavorable results." He stated that the mortality of the attendants in the principal hospitals for consumption was surprisingly low; and that he could, from investigation, confirm the belief that there is no relation between the increase of the number of phthisical patients at a health resort, and the number of deaths from consumption occurring among the native inhabitants. This ground is also substantiated by the statistics of the Brompton Hospital for Consumption in London, as collected by Drs. William and Humphreys. This is a large institution, and had been in operation for thirty-six years up to the year 1883, yet not a single clearly authenticated case of pulmonary consumption among the many attachés of the hospital occurred within its walls. The statistics of the Brompton Hospital in regard to the non-contagiousness of phthisis are probably not more striking than those which relate to the influence of the Consumption Hospital of Görbersdorf, Germany, on the death-rate from phthisis among the inhabitants of that town. Dr. Brehmer, who has been in charge of that institution for twenty years, says[1] that the mortality among the native residents has diminished fifty per cent. during that time, and that, too, in the face of the constant exposure to the expectoration and exhalation of the many phthisical patients residing there.

Virchow, in his famous address "Der Kampf der Zellen und Bacillen," says:

"After Dr. Koch had found the tubercle bacillus many *affected to believe* that all the arduous labors of previous observers were superfluous. Unity of the bacillus—therefore unity of phthisis. Pulmonary phthisis, however, remained as before: A significant process commencing in many ways,—sometimes in the mucous membranes of the air-passages, sometimes on the inner surfaces of the alveoli, and sometimes in the parenchyma of the lung—and which may at one time engender simple inflammatory products, and at another time specific tubercles, and he who wishes to form an intelligent conception of it must do more than familiarize himself with the staining of bacilli."

In the *Correspondenzblatt für Schweizer Aerzte*, Nos. 10, 11, and 12 for 1886, appears a most interesting and instructive paper entitled "Eine Statistiche Studie als Beiträg zur Aetiologie der Lungenschwindsucht," by Dr. H. Schnyder. It is based on an observation of 3461 cases of pulmonary consumption under his professional care whilst resident physician at the health resort of Weissenburg, in Germany. He classifies them into city and country patients—those coming from cities numbered 2549, and those coming from agricultural districts numbered 912. Of the whole number there were 2194 males, and 1267 females; or 63.4 and 36.6 per cent. respectively. The patients from the cities numbered 1659 males and 890 females; or, 66.87 and 34.13 per cent. respectively; while those from the country numbered 537 males and 377 females; or, 58.66 and 41.34 per cent. respectively—showing that the male sex is absolutely and relatively more liable to the disease, both in city and in the country, than the opposite sex, while the reverse is true in regard to females, for 7.21 per cent. more of this sex suffer from the disease in the country than in the city. This result is still more surprising when we reflect that on the whole there are more females than males in the city, and more males than females in the country.

In order to confirm or refute this last observation, Dr. Schnyder compares the phthisical death-rates of the cities of Geneva, Basle, and Zurich, with those occurring in the cantons of Wallis, Waadt (without Lausanne and Vivis), Freiburg, and Lucerne (without the city), during the eight years from 1877 to 1884, and he obtained the following confirmatory results: In the above-named cities there were 2583 males

[1] Die Aetiologie der Chronischen Lungenschwindsucht, p. 492. Von Dr. Hermann Brehmer, sr. Berlin, 1885.

and 2142 females; respectively 54.7 and 45.3 per cent.—and in the above-named cantons there were 2822 males, and 2549 females—respectively 52.5 and 47.5 per cent.—who were suffering from pulmonary phthisis.

Now it would be perverting reason to contend that there are more bacilli in the relatively purer country air; hence, it is very evident that there exist producing causes of phthisis in the country at least in which the bacilli do not share. The author attributes this greater liability of the female country population to the disease, to the fact they are more exposed to all kinds of weather and temperature, and perform more laborious work than their city sisters.

In this connection it is very interesting to note in the second volume of *Mittheilungen aus dem Kaiserlichen Gesundheitsamt* that the phthisis mortality among females in the city and country is greatly influenced by age. It appears here that females in the city are more liable to phthisis in their youth, and those in the country when they are past middle life. This is believed to be due to the faster life among city people, and consequently a more rapid exhaustion of strength than is the case in the country.

Dr. Schnyder's cases of hereditary phthisis among his city patients are 62.08 and 73.71 per cent., males and females respectively; and among his country patients 61.31 and 72.15 per cent., males and females respectively. Therefore, about two-thirds of all his cases were traced to heredity as a cause. This is somewhat lower than the rates of Homann, who gives 70 per cent.; as well as those of Rufz, who gives 87 per cent., but higher than those given by Williams based on 500 cases, than those of Cotton based on 1000 cases, and than those of Albert Müller based on 988 cases—which were 45, 36.7, and 28.6 per cent. respectively. The higher percentage of heredity in Dr. Schnyder's cases may be due to his tracing the family histories to grandparents, uncles, and aunts. His cases of acquired phthisis in cities numbered 37.92 per cent. males, and 26.92 per cent. females, and those in the country numbered 36.69 per cent. males, and 27.85 per cent. females.

The question of the infectiousness of phthisis between husband and wife is probably the most instructive portion of this most interesting investigation, and is very conclusive in regard to the non-etiology of the tubercle bacillus. The table records 844 cases of phthisis occurring among married people. In 445 of these cases the husband only was affected, in 367 cases the wife only, and in 32 cases, or about 3 per cent., both husband and wife were affected. In 812 of these cases the question of contagion is entirely excluded, while this cannot be stated with equal certainty of the 32 cases. Yet if we reflect that more people suffer and die from phthisis than from smallpox, which is unquestionably contagious, that only a very small fraction of those who are exposed to the former disease take it, and that all the unprotected who are exposed to the latter disease invariably fall a prey to it, it does not argue much in favor of the theory that phthisis is conveyed from one person to another through contagion.

To take refuge in the theory that "a proper soil" in, or "a disposition" of the body is necessary to the contagiousness of the tubercle bacillus, is merely shifting the question from a higher to a lower plane. What matters it, whether it is the "disposition" or the "proper soil," or anything else in the body on which the germ is presumed to act? If it fails to act when it comes in contact with any of these elements, it loses an opportunity which is never unimproved by a genuine contagious disease. The crucial question concerning the contagiousness of phthisis in these cases can therefore be stated in the following terms: If the "disposition" or "proper soil" existed in the 32 cases, why was it absent in the 812 cases?

Then again in connection with the "disposition" and "proper soil" theories, it may be stated that we have numerous instances where physicians who suffered from phthisis themselves, spent many years of hard labor among consumptive patients principally, and never experienced any injurious consequences. Dr. Schnyder is an example of this himself. He says that he has a chronic affection of his right apex, which has not given him any trouble during all the years he has been engaged and overworked among phthisical patients at Weissenburg. Surely in agreement with Dr. Schnyder, we can say that if anywhere, in such cases, there should be a nidus or "soil" to tempt the most fastidious bacilli to colonize.

But is it beyond doubt that even the 32 cases were clearly engendered through contagion? We think not, for Dr. Schnyder says that it is a notorious fact, that in spite of all entreaties and warnings young people are often wedded while suffering from active lung disease. Dr. Schnyder relates four such cases in his own experience in which both the bride and bridegroom came to Weissenburg fresh from the matrimonial altar to be treated for phthisis, from which they both suffered. How many of the cases of phthisis which are supposed to be due to the communicability of the disease between husband and wife through contagion, are free from this element of uncertainty? To say nothing of those who are wedded while suffering from the acute forms of the disease, it cannot be denied that many young people of both sexes carry the hereditary taint of phthisis in their constitution, which only awakens from its slumber to assert its power when the many varied demands of family life begin to exhaust the vital resources.

It is evident that the standpoint from which we view the origin of phthisis is the fulcrum on which its successful treatment depends. If we believe that the bacillus is the cause of the disease, then the indications are toward the extermination of this parasite. If we believe, with Dr. Schnyder and many others, that it is merely a concomitant—a scavenger—of the disease, then we should trace the latter to other causes and modify our treatment accordingly. We hope that enough has been said to prove that the theory that the bacillus as a causative factor of pulmonary phthisis is encountering formidable opposition in the land of its birth, and trust that it will receive a most rigid investigation before it becomes the foundation-stone of pneumo-therapy in this country.

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MEDICAL PROGRESS.

Simplification in the Technique of the Sänger Operation.—At the recent meeting of the German Gynecological Association in Munich, Dr. Sänger stated that, while the classic simplicity of the Cæsarean section was irretrievably a thing of the past, there was not necessarily any great complexity in the modern modified operation. His rules as to technique are as follows:

1. *Preparation.* No especial instruments are needed. The abdomen, vulva, and vagina are disinfected with sublimate solution,—the instruments with carbolic acid. Sponges may be substituted by large cotton wads dipped in the antiseptics just named or in chlorine water, or by napkins of sublimate gauze, etc. Two assistants are sufficient. In case of need the narcosis may be intrusted to a layman.

2. *The abdominal section* is in the linea alba. The application of hæmostatic clips and the introduction of provisional sutures may be dispensed with. Unless there has been death of the fœtus, rolling out of the unopened uterus is not advisable on account of the increased length of the incision involved and the likelihood of intestinal prolapse.

3. *The uterine section* is the anterior middle median incision, the lower uterine segment being avoided. The deep diagonal incision advised by Kehrer is not commended. In Cæsarean placenta prævia, the placenta may either be rapidly cut through or it may be loosened laterally. The author has followed the first method in one case and the second in two cases; in neither were there any resultant difficulties in suturing or in arrest of hemorrhage. The removal of the fœtus is best begun at the feet. If the head be retained the operator waits a short time and, if then necessary, enlarges the incision upward.

4. *Eventration of the uterus.* A napkin is spread over the intestines and the uterus enveloped in another. In the absence of elastic rubber tubing, an artificial bloodlessness of the uterus may be produced by manual compression or by torsion on its long axis. The placenta is separated by the fingers, and the patulency of the collum is ascertained. The uterine cavity is now disinfected with iodoform and is filled by sponges or strips of gauze until the introduction of the deep sutures.

5. *Sutures.* The deep sutures include the serous and muscular coats, but not the decidua. They are wide, eight to ten in number, and best made with flexible silver wire. The superficial stitches are taken with fine silk at the edges of the wound, and are from sixteen to thirty in number. In the absence of silver, which is highly commended, strong, aseptic silk may be employed.

6. *Washing out the uterus* is effected with sublimate, five parts to the thousand. Iodoform is applied to the line of suture, and the uterus is replaced as soon as all bleeding has ceased. There is no abdominal toilet except under especial indications, and *no drainage*. The abdominal wound is closed with silk knot sutures, iodoform and a thin adhesive plaster covers all. Ice bladders are placed upon the abdomen and several ergotin injections are given.

7. *The after-treatment* is to be as inactive as possible.

Sänger maintains that while uterine suture is not strictly speaking easy, yet suturing the intestine is more difficult.—*Centralblatt f. Gynäkologie*, July 10, 1886.

Two New Tests for Sugar.—The two reactions about to be described are common to cane-sugar, milk-sugar, glucose, levulose, and maltose, and to the carbohydrates and glucosides capable of yielding glucose by the action of sulphuric acid. They do not, however, produce any result with inosite, mannite, or quercite.

1. From one-half to two cubic centimetres of the suspected liquid are treated with two drops of a fifteen or twenty per cent. alcoholic solution of alpha-naphthol, and the mixture is shaken. A slight turbidity results from the precipitation of a little naphthol; sulphuric acid is then added in quantity equal to or even double the volume of the fluid, and the whole is briskly shaken. In the presence of sugar a deep violet color is developed, and dilution with water throws down a violet-blue precipitate, soluble in alcohol and ether with a yellow color, or in caustic potash with a golden-yellow color. In order that the reaction may occur as described, the test must be made exactly as stated.

This test will permit the detection of 0.00001 per cent. of sugar, and, with the exception of vanillin, anethol, methyl salicylate, and a few similar substances, gives no reaction when sugar is not present. These substances, however, either produce the color with sulphuric acid alone, or the precipitate formed when the violet solution is diluted with water, differs totally in character from that formed in saccharine liquids. The limit of sensibility of Fehling's test is 0.0008 per cent., and that of Trommer's test is 0.0025 per cent.

2. If, instead of the alpha-naphthol in the preceding test, an alcoholic solution of thymol of similar concentration be employed, the remaining manipulations being the same as before, a deep red varying from cinnabar to carmine is produced; dilution with water brings the color to carmine, and after a time there separates a flocculent precipitate, which dissolves with a pale yellow color in alcohol, ether, and caustic potash, but with a bright yellow in ammonia.

The delicacy of this reaction is about the same as of that with alpha-naphthol.

After many experiments had shown the trustworthiness of the results given by these tests, it was interesting, on account of their exceeding delicacy, to apply them to the solution of the disputed question whether normal human urine does or does not contain sugar. The results of the first attempts were so decided that the urine examined appeared to be diabetic. The urine of a number of perfectly healthy individuals was therefore examined, but with precisely the same results. The tests were made with alcoholic solutions of alpha-naphthol and thymol, exactly as has been described, and the extraordinary delicacy of the reactions can be better understood by the statement that normal urine diluted to from one hundred to three hundred times its volume with water still gives a recognizable reaction. When the urine is diluted to four hundred times its volume, the test shows no result.

In order that there might be no question as to sugar being the actual cause of the reaction, the following substances were examined and gave negative results

with both alpha-naphthol and thymol: urea, creatine, xanthine, uric acid, allantoine, hippuric acid, succinic acid, phenol, pyrocatechin, and indican.

These results fully confirm the opinion advanced by Brücke, and supported by many other observers, that normal urine constantly contains sugar.

These tests may be applied in two different ways in order to distinguish a normal from a diabetic urine.

1. A specimen of normal urine and of that to be tested are equally diluted with water to about one hundred times their volume; the same quantity of each is then tested just as has been described; if the suspected urine give a deeper violet than the normal specimen, it may be considered as diabetic.

2. The urine under examination is diluted with water to from four to six hundred times its volume. Even in this enormous dilution diabetic urine will sharply respond to the reactions of the tests described, while normal urine would give no result when diluted to four hundred times its volume.

After carefully studying the various tests for sugar in urine, F. Penzoldt came to the conclusion that the fermentation test is worthy of the greatest confidence in doubtful cases. All experiments, however, seem to show that the two new tests are decidedly more certain than the fermentation test. They leave but one thing to desire: they do not enable a distinction to be made between glucose and levulose, and although the sugar found in urine will in nearly all cases be glucose, yet various instances have occurred in which levulose was detected also.—*Phila. Med. Times*, Aug. 7, 1886.

Cocaine in Angina Pectoris.—Prof. Laschkewitch has found good results from the internal administration of cocaine (in doses of one-half to one-third of a grain three or four times daily) in cases of angina. It does not cut short an attack, but diminishes its intensity, and after a few days' consecutive administration it gradually diminishes the force and duration of the seizures until they may wholly disappear (*Rev. de Méd.*, August, 1886). He details four cases; one was that of a man thirty-five years of age, the subject of aortic regurgitation and dilatation of the aorta. Anginal attacks occurred as frequently as eight times daily, and were of the characteristic kind. He was obliged to keep his bed, but the attacks also occurred during the night, preventing sleep. The disease had lasted two years, and had not been much benefited by oxygen inhalation. Half-grain doses of cocaine were prescribed, with the result that the attacks became less frequent and shorter, eventually disappearing. The patient died subsequently of an infectious disease. Another case was that of a man aged sixty-three, with mitral disease, aortic dilatation and general arterial sclerosis. Anginal attacks had occurred during the past six months on physical or mental exertion, and were only subdued by morphia. Here, again, cocaine acted admirably, the angina ceasing after three days' administration. In a third case the patient, aged fifty-eight, presented marked arterio-sclerosis; the angina disappeared after two days' administration of one-third of a grain four times a day. The fourth case, a man about forty years of age, was one of aortic regurgitation, with marked dilatation of the aorta; and the administration of cocaine speedily cut short the anginal attacks, which had become severe and frequent. Prof. Laschkewitch says that the remedy produces slowing of the pulse, which gains in volume; at the same time the quantity of urine is increased. He thinks that by combining this treatment with that by inhalation of oxygen, which acts immediately in an attack, the anginal seizure may be arrested, and its reappearance prevented.—*The Lancet*, Sept. 4, 1886.

The Proper Use of Ergot.—In a paper by Dr. F. H. Potter, which appears in the *Buffalo Medical and Surgical Journal* for September, 1886, the following conclusions are presented:

1. Ergot is a drug, which in any of its preparations, tends to deteriorate rapidly, and should never be used excepting when prepared from a pure and fresh specimen.

2. It is a stimulant to the tubular and non-striated muscular structures of the body, causing them to contract.

3. It acts especially upon the muscular structure of the uterus, throwing it into a state of tonic spasm.

4. Its action on the uterus is, however, uncertain; sometimes it contracts the entire organ, at others only a small part of it.

5. If the entire organ is contracted, labor may be delayed through the rigidity of the os, and the child destroyed by the interference with the placental circulation.

6. Or the contractions may be so powerful as to force the child at once into the world, causing any or all of the lacerations of the soft parts of the mother.

7. The life of the child may be endangered, also, through absorption of the essential oil of ergot.

8. If given after the birth of the child, and before the expulsion of the placenta and membranes, it may prevent the removal of the latter, and thus be indirectly a cause of puerperal septicæmia.

9. It may act in a similar manner in cases of abortion, actual or threatened, and cause a similar result.

10. The proper use of ergot in obstetrical practice is limited to those cases in which, after the expulsion of the placenta, the uterus refuses to contract, or having once contracted shows a tendency to secondary relaxation. Even in these cases, however, reliance should not be placed upon it alone, but its action should be supplemented by the other means used to provoke uterine contraction.

A Case of Acute Mania, in which there was Complete Remission of the Symptoms during a Temporary Plugging of the Sinuses.—A married woman, aged forty-one, with neuropathic antecedents, became depressed and nervous, and after some weeks this culminated in an attack of acute mania. Symptoms of commencing hæmatoma developed in the left auricle, but abated, followed, however, by a fully developed hæmatoma of the right ear. The mania persisted for six months, accompanied with considerable failure of bodily health, but at the end of that time she became suddenly quiet and composed, and this marked remission of the maniacal symptoms was coincident in point of time with the appearance of a painless tumefaction over the mastoid cells, and a general puffy and œdematous condition in the orbital region of the right side. Seventeen days afterward the œdematous swelling had

quite disappeared, and the maniacal symptoms reappeared as suddenly as they had subsided.—*Glasgow Medical Journal*, September, 1886.

The Treatment of Paronychia.—Dr. Sellden writes in the *Eira* that he has for years made a special study of this subject. The greater number of his patients have been miners, smiths, machine laborers, servants, and others whose fingers are exposed to injury. The disease commences in the subcutaneous tissue, and spreads to the periosteum. There are differences of opinion as to the varieties of this disease, some authors asserting that there are four, others that there are only two—the deep and superficial inflammation. Dr. Sellden, after a series of trials, found the following method most efficacious in the treatment of paronychia. When the patient will consent to an incision, the finger, after it has been opened, is instantly plunged into a tumblerful of hot water, which is then allowed to cool until it is nearly lukewarm. Half a teaspoonful of arnica is poured in, and a teaspoonful of the usual ten per cent. solution of potash is added. This mixture is highly anæsthetic; the finger is held in it for from fifteen to thirty minutes, when the "bad matter" comes out. This expression is very characteristic of the phenomenon. The blood and pus exude in a thin stream about the size of a knitting needle, which forms circles in the alkaline liquid, and finally settles in a thick mass at the bottom of the glass. Fifteen minutes or half an hour after the finger is dried, it is rubbed with vaseline ointment containing ten per cent. of sulphide of potassium. The finger is then immediately enveloped in a poultice which continues warm until the next finger-bath, and thus hastens the cure. These finger-baths are taken from two to four times daily, and the wound is covered during the earlier days with sulphur ointment, and later with a boracic ointment. The finger is then bound up with a wadding compress and a bandage. Carbolic acid may be used in the finger-bath, but Dr. Sellden gives the preference to arnica, which he finds particularly useful in all sorts of injuries. —*The Lancet*, August 28, 1886.

Treatment of Divided Tendons. — In a paper recently read before the Orthopedic Section of the Academy of Medicine, Dr. R. H. Sayre presented the following conclusions:

1. That after tenotomy the parts should be immediately restored as nearly as possible to the normal position, and there retained during ten days or two weeks; after which time, whatever subsequent treatment may be necessary to vitalize paralyzed muscles, or complete the restoration of natural functions, should be carried out as may be necessary.

2. That this proceeding is accompanied by the least discomfort to the patient, and annoyance to the surgeon, and causes a vast saving of time.

3. That there is no more danger of non-union of the ends of the divided tendon in this manner than by other modes of proceeding.

4. There is less apt to be a thin, imperfect bond of union between the ends of the tendon than when gradual reduction of the deformity is practised.

5. That this mode of operation is applicable at the foot, knee, thigh, or neck, where there is no ankylosis to be overcome, but that in cases of long-standing ankylosis at the knee when tenotomy is but preparatory to *brisement forcé*, the latter should be deferred for forty-eight hours, to avoid possible risk from gaping of the external wound due to the violence of the manipulations.

Should the deformity at the knee be due simply to contractured muscles, immediate replacement may be practised here also.

The Treatment of a Form of Diarrhœa in Children.—There is a form of diarrhœa in children, usually occurring after weaning, and from that period to four or five years of age, which is characterized by the most horrible offensiveness of the motions. This is so marked that it is generally at once mentioned by the parents. It is commonly met with in summer, but is not strictly what is known as infantile diarrhœa, in which disease the stools are sour, but not necessarily fetid. Probably this form of diarrhœa differs from the diarrhœa of younger infants in being caused by the growth of the ordinary bacteria of putrefaction. It is not amenable to treatment by any astringent, nor has any alteration of diet much effect upon it.

Dr. James Braithwaite (*British Medical Journal*, July 17, 1886), however, states that it may be successfully treated by disinfecting the bowel contents by means of salicylate of iron as in the following prescription, which is suitable for a child two years of age: Sulphate of iron, ℈j; salicylate of sodium, ℈j; glycerine, ℥iij; water to three ounces. The iron and the salicylate should be dissolved separately and the solutions mixed. The color is darker than that of port wine, and the taste not unpleasant. One teaspoonful must be given every hour, until the stools become well blackened, which happens in about twenty-four hours; or a larger dose may be administered at longer intervals. The medicine should then be given every three or four hours, and occasionally a small dose of castor oil, to clear the bowels well out, and to get the secondary constipating effect of the oil.

In hospital practice, and amongst the poor, it is not so successful as it would be if it were possible to remove the child from the family living-room, the air of which is usually very impure, and is made worse by the smells incidental to cooking, and the presence of a sink.

Electrolysis for the Treatment of Urethral Stricture.—At a recent meeting of the Academy of Medicine in Ireland, Mr. P. J. Hayes read a paper on the treatment of urethral stricture by electrolysis, the comparatively novel method practised by Drs. Robert Newman, of New York, and S. T. Anderson, of Bloomington. He gave the details of three cases, in which he had himself adopted the method with encouraging results (*British Medical Journal*, July 17, 1886). He strongly advocated the trial of electrolysis even for the most complicated forms of stricture. It does not at all interfere with the subsequent employment of other measures, minor or serious. Electrolysis is best adapted for the treatment of annular strictures rather limited in length. Having ascertained the situation of the stricture, the tip or exposed metal bulb of an electrode ought, if possible, to be lodged within it; or if this

is impracticable, the tip must be in close contact with the anterior face of the stricture. Then a small galvanic battery is connected by its negative pole with the urethral electrode, while the positive may be attached either to a moist sponge electrode or, better still, to a thin metal plate covered with moistened chamois leather. The positive electrode will be advantageously applied either to the patient's perineum or against the inner side of one thigh. As to the strength of the current to be employed, the patient's own sensations will prove the best guide. The current should be perceived, but it ought not to be pushed to cause pain, nor should the surgeon attempt more than it is needful to effect at each sitting, using only mild currents, and manipulating the electrode with gentleness, and never pushing it through the stricture, as it accomplishes more by being allowed to remain in the stricture than by being caused quickly to traverse it. The sittings may be repeated every ten days, if desired. Cauterization results when strong currents are employed, but with mild currents the gradual breaking up of fibroid tissue is effected by a combination of chemical decomposition and vital absorption until but a thin lamella of cicatricial tissue remains to mark the seat of the stricture.—*Therapeutic Gazette*, September 15, 1886.

TREATMENT OF PHTHISIS.—In the August number of *The Journal of Nervous and Mental Disease* DR. LEONARD WEBER, after emphasizing the fact that great nervous depression may frequently accompany the phthisical state, speaks as follows regarding treatment:

So long as we do not know of a remedy which will be at least as good an antidote to the tubercle-virus as mercury is to syphilis, we had better give no drugs to such patients, except for special purposes. But as much good has been accomplished in phthisis and therapeutics by sea and mountain air, the patient ought to be sent to a sanitarium selected with due regard to his individuality and the peculiar features of his case, and into the care of an accomplished physician who has learned to treat and manage phthisical patients rather than phthisis. I am afraid that many physicians are not aware that the phthisical patient needs often a good deal of moral treatment and management before we can depend upon him to carry out systematic and painstaking treatment for months—for years. A careful hygiene, continual supply of fresh air night and day, and yet scrupulous care in avoiding cold in the routine of daily life, proper clothing, frequent baths, and even douches to counteract the bad effects of and limit the profuse sweating, gentle and graduated exercise to invigorate the heart, I consider to be among the principal measures to help the patient in his fight with the disease. Of the utmost importance is the frequent supply of nutritious food by the mouth and by the rectum, combined with the judicious use of stimulants. Feeding, nay, over-feeding, as Debove advises, is indeed the *sine qua non* of an improvement or a possible cure in the case of a patient suffering from so chronic and debilitating a disease as pulmonary tuberculosis.

THERAPEUTICS OF DELIRIUM TREMENS.—PROFESSOR LEUDET, of Rouen, in a valuable article in *La Normandie Médicale*, gives a *résumé* of twenty-two years' hospital practice in the treatment of delirium tremens. He says that long ago he gave up the indiscriminate use of opium and its alkaloids as doing more harm than good. The mortality, which, while using opium, was sixteen per cent. of all cases received, fell to six per cent. after the abandonment of the routine opium treatment. In the commencement of an attack he now makes use of an infusion of quinquinia (from sixty to ninety grains to the pint). This is given freely, is well borne, and seems to cut short an attack. Bromide of potassium and chloral hydrate are both valuable drugs, rendering real service in quieting nervous symptoms and producing sleep. Leudet concludes with Gardner, that where opium is used to the extent recommended by some practitioners the patients as frequently succumb to the toxic effects of the remedy as they do to the delirium itself.—*St. Louis Medical and Surgical Journal*, August, 1886.

TREATMENT OF EPILEPSY.—DR. E. D. FISHER writes as follows in the *Journal of Nervous and Mental Disease* for August, 1886:

In reference to the treatment of epilepsy I depend on the bromides exclusively, usually commencing with thirty grain doses three times a day.

I prefer, as a rule, the mixed bromides, in the proportion of four parts of the potassium bromide to two parts each of the sodium and ammonium bromide; when cardiac weakness is present, employing digitalis or aromatic spirits of ammonia.

I have not found, as some affirm, that iron acts deleteriously, that is, when anæmia is present. Nor does the continued use of the bromides for years even, in my experience, lead to any mental disturbance; in fact, I find a gradual improvement in this respect whenever I succeed in controlling the disease.

In regard to cure of the disease, in my opinion that is less often accomplished than amelioration of the condition.

CLINICAL STUDIES OF THE PUPIL.—SCHMEICHLER has recorded the results of over 5000 observations made upon the pupils of persons in health, of those suffering from acute and chronic diseases, and of the dying and dead. There were observed:

1. Pulsations of those vessels of the iris which are in direct connection with the intracranial vessels showed a systole and diastole occurring from sixty to eighty times in the minute.

2. A movement of the iris dependent upon rhythmic impulses from the vasomotor centre, occurring from two to six times per minute.

3. Protrusion and depression of the iris, coincident with respiratory movements. These correspond with the "spontaneous pupillar movements" described by the author. Such movements were noted during an attack of hystero-epilepsy in a girl of twenty-one years. In this case such variations in the rhythmical movements of the iris occurred in the complete absence of pupillary reaction to light, and were coincident with the forced respiratory movements of the patient. The spontaneous pupillary movements were most marked in excitable, neuropathic individuals.—*Centralblatt f. klin. Med.*, July 10, 1886.

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MILK-POISONING AT LONG BRANCH.

IT will be remembered that some weeks ago considerable excitement was created at Long Branch by the sudden development, at several hotels, of a number of cases of severe illness, with all the appearances of acute poisoning, and the distribution of the cases speedily caused suspicion to attach to the milk as the vehicle. In this issue of THE MEDICAL NEWS we present a careful study of this epidemic and its causes by DR. W. K. NEWTON and MR. SHIPPEN WALLACE. The paper is a most important contribution to sanitary science, and its deductions must command widespread attention, since it is evident that this cause of poisoning is liable at any moment to be called into existence, with the same direful results.

The practical value of the investigation lies in the fact that, by a careful process of exclusion, there was obtained a rigorous demonstration not only of the origin of the late wholesale milk-poisoning at Long Branch, but, also, of the precise conditions under which the poison in question was developed. It is now conclusively shown for the first time that milk, warm from the cow, when placed in tight cans, under conditions which greatly retard the dissipation of its heat, will undergo change with the development in the course of five hours of enough of a poisonous ptomaine to cause alarming toxic symptoms in those partaking of the milk even in small quantity.

In view of the fact that tyrotoxicon, the poison thus developed, is volatilized at the temperature of 180° F., we find increased reasonableness in the routine practice of thoroughly boiling all milk intended for the use of infants, especially in summer. Not only does such treatment destroy the germs of lactic acid fermentation, but it dissipates an actively irritant poison which is not unfrequently present in greater or less amount.

This investigation, further, teaches the important practical lesson that milk, immediately after being drawn, should be placed in open vessels and rapidly cooled by being surrounded by ice or cold water before transportation. In this way fermentation, with the resulting production of poisonous ptomaines, such as tyrotoxicon, is prevented, and the milk is delivered in a condition proper for consumption.

THE CHOLERA.

THE present outbreak of cholera in Europe is, as we have before had occasion to point out, very different in its course from that of previous epidemics. Beginning in Toulon, in the early part of June, 1884, it appeared in Italy in July, and in Spain in August of the same year, spreading toward the south, rather than, as has usually been the case, to the north. During that year it caused about 7800 deaths in France, 14,300 deaths in Italy, and 600 deaths in Spain. In 1885 it was most violent in Spain, where it caused nearly 120,000 deaths, the mortality being from fifteen to thirty per cent. of the whole population in some localities, more especially in the smaller villages. During the same year it caused 2545 deaths in France. Disappearing almost entirely during the winter, it was again reported in the spring of the present year in Brittany, where it caused about 500 deaths, and at scattered points in Italy and Spain, where it has continued throughout the summer.

Its marked peculiarity, this year, has been the slowness of its spread, both from place to place, and within the larger towns in which it has been reported. In some places the mortality has been reported as very small in proportion to the number of cases; but in others the disease preserves its usual deadly character—as, for instance, in Ravenna, where over half the cases have died. At present the disease seems to be disappearing in Northern Italy, and we hear little of it farther south; but there is reason to think that it is still prevailing in some of the villages and small towns in Southern Italy, to a much more serious extent than the press dispatches would indicate.

What is the reason for this unprecedented lingering of cholera in Southern Europe, for three years, without spreading to the North, and what are the prospects for next year? There is nothing to indicate that the power of the virus is any way weakened or attenuated; if the disease depends on a micro-organism, that organism appears to be just as lively,

to multiply just as rapidly, and to produce as fatal results, as shown in San Giovanni Rotundo during the last week in August, as ever. Nor can the slow progress of the disease be entirely explained by meteorological conditions, for, although the summer has been everywhere cool, it has not prevented sharp attacks in some localities. It seems difficult to come to any other conclusion than that the spread of cholera has been hindered by the precautions taken, by the increased and better disinfection which has been practised, by the greater care which has been taken of the sources of water supply. It is a noteworthy fact that it is not in the large cities of Italy and Spain that cholera has spread most rapidly, and has been most destructive, but in the villages, where the risks of water contamination are greatest, and where the people are most ignorant of modern methods of dealing with contagion.

As to future prospects, we can only conclude that the germs of the disease will linger in Southern Europe throughout the coming winter, and that it will probably again appear next spring in Italy, and possibly in Austro-Hungary. The danger to this country is, therefore, by no means over. At the same time there is more ground for hope that sanitarians will be able to stamp out the disease in Europe before it has been brought to us than there was in 1884 and 1885, when we had only the experience of previous epidemics to guide us. It must not be forgotten that cholera exists now as an epidemic in some parts of Japan, and that there is some risk of an invasion of this country from the West as well as from the East. This outbreak of cholera in Europe has induced a vast amount of cleaning up, and of interest in sanitary work in the United States, which has been of great benefit already; and the obvious deduction is that the best thing that our States, cities, and towns can do, is to go on, and act precisely as if they expected that cholera will reach our shores next summer.

HEALING UNDER BLOOD-CLOT.

ONE of the most interesting papers read at the last Congress of German Surgeons was by Schede, of Hamburg, in which he gave the results of his experience with a plan for securing the healing of wounds, which is diametrically opposed to the general idea in regard to the management of blood-clots. It is usual to regard these as among the most inauspicious of foreign bodies, and to regard their removal as indispensable to prompt and successful healing. Since the general use of antiseptics, it has been frequently observed that the presence of a clot may not do any harm; that, in fact, the clot may become organized. Observing this fact, Schede has boldly made use of the blood poured out into a variety of surgical wounds to secure a protecting covering, which has the advantage of doing away with the necessity for drainage or compression. In the operation of Phelps for club-foot—open division of all the contracted soft parts, down to and including the astragalo-scaphoid ligament—he found that if he simply covered the gaping wound with a bridge of protective silk, placed over this a good antiseptic dressing, and secured fixation with plaster bandages, he could leave the wound to itself without concern; and that, after three or four weeks, there would be solid cicatrization, or only a short, narrow strip of granulation, or a little strip of leather-colored clot, still attached along the middle, as the sole remains of the large mass of blood which filled the wound immediately after the operation. In this way not only does the skin unite, but all the soft parts—muscles, tendons, and ligaments—assume their normal functions. In manner similar to this, Schede found a very large number of operations to heal without mishap. Of these he gives a list comprising 241 operations, including 40 resections of joints, with 37 typical recoveries; one resection of a piece of the wall of the thorax as large as the palm of the hand, with typical healing; 18 operations in which he chiselled out tuberculous foci in bone, with free opening of the joint, all with typical healing; 29 cases of removal of necrosed bone, with 27 typical recoveries; 20 open operations for club-foot, all with typical healing; 10 operations of scraping off of fungous granulations of the sheaths of tendons, with suppuration in only 2 cases; 24 cases of removal of tumors, with slight suppuration in only two. In one case he saw a large blood-clot become organized in the lacerated brain, after a severe complicated fracture of the skull; and once, in a fracture of the elbow-joint, in which he had to make a deep incision into the joint, to relieve tension, the wound being about nine inches long and three inches wide, the blood-clot remained in place for over three weeks, until the fracture was consolidated.

The method pursued in securing these extraordinary results was, where possible, to employ Esmarch's bandage, to observe the most scrupulous asepsis, and to remove every portion of diseased tissue. Large wounds were closed with sutures, placed at such intervals as to leave only one or two openings about half an inch long, to permit the escape of superfluous blood into the dressing. In some cases a counter-opening was made for this purpose. Schede found that the skin united well over considerable cavities, such, for example, as are left after an operation for necrosis, and that unsutured wounds, like that after Phelps's operation for club-foot, healed equally well. No drainage tube was used. The wound was covered with a piece of protective for two purposes: first, to secure complete filling of the wound with the blood-clot, and second, to keep this moist by preventing

its absorption by the dressings, which were only intended to absorb the excess of blood. Over all was placed a thick antiseptic dressing of sublimate gauze and cotton, and sublimate moss bags. It is important, in order to secure the filling of the wound with blood, that when a counter-opening is made, it shall be at the highest point, instead of, as usual, at the lowest. In regard to the control of hemorrhage, when no large vessels were wounded, and the bleeding was not profuse, no account was taken of it. Arteries of any size were ligated, of course, and the filling of the wound was left to the parenchymatous bleeding.

Perfect asepsis is indispensable to Schede's method. If any doubt exists in regard to having secured it, he advises filling the wound with antiseptic material, such as iodoform gauze, or sublimate gauze, or bismuth, and leaving it till granulation is established, after which the filling of the wound with blood can be secured by shaving off the granulations, and the cure will be hastened materially.

Schede is convinced that this method will soon secure many friends, because of its great convenience, and because it secures the safest, quickest, and most perfect healing, and often the most perfect functional results. The knowledge of his success will go far to fulfil this expectation, which will be aided by reflection upon facts which must have been observed by many a surgeon who has been already compelled to act as he has done without any well-defined purpose, such as prompted Schede to adopt and recommend this as a general method; for which reason it may well be called by the just and convenient name of "Schede's method."

PERLÈCHE.

Under this term Lemaistre, in *Le Progrès Médicale*, describes a parasitic disease of children, characterized by an affection of the lips, appearing first at the angles of the mouth and gradually involving the epithelium of both mucous and cutaneous surfaces. The heat and irritation cause the children to lick the lips, hence the name *perlèche—lècher* or *perlècher*, to lick—given by the people of the district in which it prevails. The lesion seems confined to the epithelial layers, and resembles closely a mucous patch. Small fissures may form, particularly at the angles of the mouth, and may bleed and cause great pain. The disease is not severe, lasts from two weeks to a month, relapses are common, and attacks may recur yearly. It is highly contagious and is probably communicated in the schools by the drinking cups. The statistics of the affection are interesting. In Limoges, of 5500 children attending the schools 312 were attacked. In the winter, when these figures were collected, the disease is not very prevalent, but in the spring and summer months the cases become very numerous. A microbe was readily discovered in the exudation—a streptococcus—and it is claimed that one similar in general character was found in the water adjacent to the infected schools, but the evidence of the identity of the two and of the actual dependence of the disease upon it, is not well sustained.

Possibly this affection is the same as certain forms of sore lips in children, which we see here at times, but never, so far as we know, in epidemic form. It may be allied to aphthous stomatitis, which is unquestionably contagious, and which in Holland, and occasionally in this country, has been epidemic during very moist seasons, or after inundations. Very good evidence of the spread of the disease in families is given in the *Gazette Médicale de Paris*, for August 21st.

Charleston experienced, last Tuesday, three more earthquake shocks, resulting in still further injury to her buildings. We particularly regret to learn that additional damage was done to her Medical College building, of which a large part of the walls fell in, so that it is now a gaping ruin, and apparently the remaining walls are so badly cracked that they will have to be pulled down to the basement.

The misfortunes which have overtaken our medical brothers of Charleston appeal silently but eloquently to the profession in other parts of the Union for liberal aid. The individual losses of the physicians of Charleston are so great that they are at present entirely unable to contribute to the rebuilding of their Medical College, which, although a time-honored institution, is without endowment. In this crisis pecuniary assistance should be forthcoming—promptly, liberally, and from all parts of the country. Aid now given will enable the Faculty to continue their labors, and, by holding their students in Charleston, to do their share toward promoting the revival of business in the earthquake-stricken city.

The Medical News will be happy to facilitate contributions by acknowledging in its columns the receipt of all sums sent to its care, and will forward the same to the Medical Faculty.

As a supplement to our editorials on the method of Antyllus for the treatment of aneurism in The Medical News of May 1st and 29th, of this year, we would call attention to a recent communication by Köhler, in the *Charité Annalen*, in which he reports its successful employment in a case of aneurism of the popliteal artery, rapidly developed, in a man twenty-seven years old. Instrumental and digital compression had proved useless, and Köhler excised the sac, which was four inches long by three inches wide, with about two and a half inches of the popliteal vein, and ligated the artery above and the tibiales

anticus and posticus below. The opening made was as large as two fists. It was closed with sutures and a drainage tube inserted. Healing occurred by first intention and no functional disturbance resulted from the operation. Köhler has collected the records of fourteen such operations since 1875, all successful.

Another volume of the *Index Catalogue of the Library of the Surgeon-General's Office* has just been issued. It comprises 959 pages and extends from "Insignarès" to "Leghorn." Like its predecessors, it has been compiled under the supervision of Surgeon J. S. Billings. An idea of the magnitude of the work which Dr. Billings has undertaken may be formed from the statement, that this seventh volume of the Catalogue includes 14,688 author-titles, representing 5,987 volumes, and 12,372 pamphlets, and 6,371 subject-titles of separate books and pamphlets, and 34,903 titles of articles in periodicals. As evidence of its comprehensiveness, and of its value as a guide to study, we may note that under the heading of "intestines," there are sixty double-column pages of references, under "labor" we find fifty pages, and the "larynx" furnishes over forty.

We find in this volume the same intelligent treatment of details and freedom from error in proof-reading which have characterized the previous volumes of this great work.

Hysteria in soldiers is a condition which, until a comparatively recent date, has been entirely unrecognized. Its existence, however, may now be regarded as established, especially convincing evidence having been lately adduced by Duponchel, who, in the *Revue de Médecine*, 1886, No. 6, records *in extenso* the clinical histories of numerous soldiers in the French army who suffered unequivocally from hysteria, and in some cases from the so-called *grande hysterie*. Ignorance of the facts here presented has undoubtedly caused those actually suffering from hysterical convulsions to be regarded either as malingerers or epileptics.

REVIEWS.

Die Intoxikationsamblyopien. Von Dr. Otto Bergmeister, Docent der Augenheilkunde an der Wiener Universität. 8vo. pp. 21. Wien: Urban & Schwarzentry.

Toxic Amblyopias. By Dr. Otto Bergmeister.

Dr. Bergmeister arranges these, according to their causation, in four groups. First, those due mainly to working with certain substances, such as the amblyopia and amaurosis to which workers with lead, bisulphide of carbon, etc., are liable. Second, chronic poisoning through the abuse of narcotics, as alcohol, tobacco, opium, and haschisch. Third, acute poisoning by certain medicinal substances, as quinine, salicylic acid, bromide of potassium, etc. Fourth, poisoning by snake-bite with subsequent loss of sight.

Cases of alcohol and tobacco amblyopia are the most frequent. To alcohol is assigned the greater influence in this direction, though chronic alcoholism, in which it occurs, is usually associated with the excessive use of tobacco. The comparative infrequency of the affection also indicates that individual predisposition plays an important *rôle* in its causation. The diagnosis does not rest upon the ophthalmoscopic appearances; but on the acuity of vision, the condition of the light-sense and the color sense, and especially on the oval central scotoma for red and green. Central visual acuteness may be greatly diminished, but the light-sense is unimpaired, the patient actually seeing better by a weak light. The ophthalmoscope shows early a slight hyperæmia of the disk with indistinctness of its margins, and later atrophy of the temporal portion of the nerve. The affection is one of the optic nerve, an axial neuritis near the apex of the orbit. Under treatment the prognosis is good except in advanced atrophy. Treatment consists in enforcing abstinence and the management of digestive derangements. Carlsbad salt in warm water, hydrotherapy with free diaphoresis, and injections of strychnia are recommended.

Of amblyopia due to lead-poisoning four forms are recognized, as by Leber: 1. Sudden binocular blindness; vision rapidly reduced to mere quantitative perception of light. Pupils dilated and fixed. Ophthalmoscopic appearances negative, or slight hyperæmia of the retinal vessels with blurring of the margins of the disk. Some of these cases are looked upon as analogous to sudden amaurosis caused by uræmia. These are to be treated by pilocarpine and the use of alkaline waters. Others are regarded as retrobulbar neuritis, which may also end in recovery, or in atrophy with impairment of vision. 2. Gradually increasing amblyopia, usually with central scotoma or concentric narrowing of the field of vision; sometimes color scotoma; impairment of the light-sense; and the same ophthalmoscopic appearances as the first form. These are also regarded as instances of retrobulbar neuritis. 3. Violent optic neuritis tending to pass quickly into atrophy. These cases may begin with sudden blindness or pass gradually to amaurosis. The prognosis is usually unfavorable. There are apt to be associated lesions of other cranial nerves, or of the brain. The urine is free from albumen. 4. Albuminuric retinitis occurring where albuminuria has been caused by lead-poisoning.

Amblyopia due to exposure to the fumes of bisulphide of carbon and chloride of sulphur occurs among workmen engaged in vulcanizing India-rubber. Usually it is preceded by other marked evidences of chronic poisoning. Subjective colors are noticed; there is paresis of accommodation, the visual acuity is lowered, and a central color scotoma occurs. The ophthalmoscope reveals evidence of an optic neuritis or perineuritis succeeded by atrophy. The prognosis seems favorable when further exposure to the cause can be avoided.

In quinine amaurosis the blindness comes on very rapidly and is often absolute, not a trace of the power of light-perception remaining. The pupils are dilated and fixed, the retinal vessels greatly contracted or entirely invisible, the optic disk chalky-white. The

prognosis is, however, quite favorable. The ophthalmoscopic appearances become normal. Sight returns and the acuity of central vision generally becomes perfect, but the field of vision enlarges slowly or remains permanently contracted in the form of an ellipse with the long axis horizontal. The dose causing these symptoms varies from three to eighty grammes, the latter taken in the course of two days. The inhalation of nitrite of amyl is recommended to relieve the retinal anæmia.

Cases of amaurosis, apparently similar to that produced by quinine, have been caused by salicylic acid, salicylate of sodium, and bromide of potassium. Cases of amblyopia have been reported due to poisoning by various other agents, as santonin, carbolic, osmic and hydrocyanic acids, opium, haschisch, mercury, and nitrate of silver.

Clinical Therapeutics. Lectures in Practical Medicine, delivered in the Hospital St. Antoine, Paris, France. By Prof. Dujardin-Beaumetz. The Treatment of Nervous Diseases, of General Diseases, and of Fevers. Translated by E. P. Hurd, M.D. Detroit, Mich.: George S. Davis, 1885.

Diseases of the Stomach and Intestines. A Manual of Clinical Therapeutics for the Student and Practitioner. By Prof. Dujardin-Beaumetz. Translated from the fourth French edition by E. P. Hurd, M.D. New York: Wm. Wood & Co., 1886.

These two volumes are taken from a series by Prof. Dujardin-Beaumetz, entitled *Leçons de Clinique Thérapeutique*, of which the work *Clinical Therapeutics* is the third and last volume and *Diseases of the Stomach and Intestines* is the first. But from the latter is omitted the first part of the French volume, including diseases of the heart and aorta. The second volume of the French series on the treatment of diseases of the liver, kidneys, lungs, pleura, larynx, and pharynx passed through its fourth edition in 1885. This, with the first part of the first volume above alluded to, we have not as yet in English, but it is to be hoped that ere long both will be added to the series.

Clinical Therapeutics, after a short discussion of the general subject from which the volume takes its name, is divided into three parts. The first part embraces short sections on the nervous system from a therapeutic standpoint, hydrotherapeutics, medical electricity, and chapters upon the treatment of neuralgia, hysteria, epilepsy, chorea, meningitis, apoplexy, and chronic myelitis. Part second takes up general diseases, discussing the blood, with instructive sections on bloodletting, the treatment of anæmia, acute rheumatism and gout, diabetes, and syphilis. Part third, after an introductory treatise on fever, deals minutely with the treatment of typhoid fever, intermittent fever, and the exanthemata. Not the least interesting of the contents of this volume is a short biography of Prof. Dujardin-Beaumetz, with a bibliography of his published works, contained in the translator's preface.

Diseases of the Stomach and Intestines are discussed in twenty-five lectures, and the subjects included are alimentation, regimen, and lavage and gavage of the stomach, dyspepsia, vomiting, neuroses of the stomach, buccal and intestinal dyspepsia, secondary dyspepsia and that of newborn infants, ulcers and cancers of the stomach, the intestine from a therapeutic standpoint, the treatment of constipation by hygiene and purgatives, and the treatment of intestinal occlusion, diarrhœa, dysentery, hemorrhoids, and intestinal worms. The titles show how comprehensive is a work which does not even pretend to be a handbook.

A large place is given in this volume to the hygienic treatment of disease; the necessity of pure air, of suitable exercise, of a proper dietary regimen, etc., is everywhere insisted on. Both volumes are enriched with copious annotations, giving concise summaries of the fruits of Continental research, and with valuable bibliographies suggestive of the immense amount of reading and clinical experience which have fitted the author to speak authoritatively to the medical public; and it is hardly possible to estimate the debt which the English-speaking branch of the profession owes to Dr. Hurd for placing these volumes in their hands.

SOCIETY PROCEEDINGS.

RHODE ISLAND MEDICAL SOCIETY.

Quarterly Meeting, held at Providence, Sept. 16, 1886.

The President, Dr. Horace G. Miller, called the Society to order.

Dr. F. C. Clark reported a case of *Abscess of the Mastoid Region*.

Dr. Anita E. Tyng, of Philadelphia, read a detailed report of two cases of

ABDOMINAL SECTION FOR OVARIAN DISEASE,

both ending in recovery from the operation. In one case both ovaries were found to be enlarged, but so adherent that it was impossible to remove them. In the second case, a cyst and contents, weighing 36½ pounds, were removed. The operations were performed at the Woman's Hospital, Philadelphia.

Dr. F. C. Clark read a paper on the

RELATION OF THE APOTHECARY TO THE PHYSICIAN,

and at its conclusion submitted the following resolutions:

Whereas, The introduction by apothecaries of certain remedies has had an injurious effect upon the profession of medicine, and tends to the usurpation of its functions:

Resolved, That the members of the profession use every means at hand to discountenance and discourage the employment in their prescriptions of any and every remedy put up and sold by any druggist, apothecary, chemist, or pharmacist, which compound comprises two or more medical substances, and has upon its label, wrapper, or both, the ailment or ailments for which it is to be employed, with or without the dose, and appended thereto some name or title to attract attention to it, whether of physicians or others, and thus contribute to the injury and dishonor of the medical practitioner; and, furthermore:

Resolved, That all such remedies, with or without the name and character of their ingredients, be interpreted in the same manner and spirit as are those nostrums coming under Article 1, Section IV., page 37, of the Code of Medical Ethics.

After some discussion, it was voted that the resolutions lie over until the next regular meeting.

The Chair announced that at the last annual meeting a proposition was made to appoint

A BUILDING COMMITTEE,

and that the objection was then raised that it would be unconstitutional to use the funds of the Society for the erection of a building. On examining the Constitution, he had found that the Society could hold real estate that should yield an income to the amount of only $500 per annum. He had, therefore, withheld his appointment of the committee, and recommended that the Legislature be petitioned to make the necessary changes in the Society's charter.

On motion of Dr. White, the Chair was authorized to apply for such an amendment.

The Chair announced the deaths of two Fellows—Dr. Charles F. Fabyan, of Providence, and Dr. Aldrich, of Wyoming, R. I.

Dr. O'Leary spoke of a very severe type of

ACUTE DYSENTERY

that is now prevalent in Providence, and reported three fatal cases that he had seen.

Dr. L. F. C. Garvin, of Lincoln, R. I., reported on the

PREVALENCE OF MALARIAL DISEASE

in Rhode Island, and said that he had seen no less than twelve fatal cases during the past five years. He regarded malaria as a very severe and dangerous disease, and one that should be brought under control as promptly as possible. In the fatal cases he had seen, death was preceded by coma, and had not resulted from the so-called congestive chill. He had heard of only one case in Rhode Island of the latter type.

The Society then adjourned, and took steamer to Silver Spring, where a shore dinner was enjoyed.

CORRESPONDENCE.

EXCISION OF VARICOSE VEINS.

To the Editor of The Medical News,

Sir: With reference to your editorial on "Excision of Varicose Veins," in the issue of The Medical News for September 11th, p. 291, allow me to say that on my recent visit to Europe I saw Mr. Clutton, one of the assistant surgeons to the St. Thomas Hospital, London, operate for the cure of varicose veins by excision, and also for varicocele by the same method.

He made, under chloroform-anæsthesia, a longitudinal incision four or five inches long along the course of the most prominent veins, isolated the vein by a neat dissection with the handle of the scalpel, tied it at each extremity of the incision, and cut out the intervening portion. He made three such incisions, parallel, about an inch or so apart, and removed an equal portion of the vein in each.

The operation for varicocele was done in a similar way in the case of a young man about nineteen years of age, who desired to enlist in the British army—the trouble being considered a defect, and cause for rejection both in the British army and also in the United States army. The incision, like that for varicose veins, was made along the course of the enlarged veins, the most prominent one separated, two ligatures applied, one above and one below, an inch and a half to two inches apart, the portion between removed by scissors, and exhibited to the students, which showed great thickening of its coat, being nearly patulous throughout. The incisions were closed by sutures, iodoform powder dusted over, and the usual antiseptic lint and gauze bandage applied.

I did not see the result of these particular cases, but was told that other similar cases operated on uniformly did well. No mention was made by the operator to the students or others, of any apprehension of danger from the operation, and as it proceeded and ended without the usual antiseptic precautions one might suppose was demanded in such cases, the inference was that it was looked upon as one of the usually necessary operations unattended by any particular risk or danger, and causing no uneasiness as to the result. The operation in both cases was smoothly, evenly, and quickly performed, and has much in it to recommend it in this field of surgery.

S. J. Radcliffe, M.D.

1523 K Street N. W., Washington, D. C.

DILATATION OF STRICTURE OF THE ŒSOPHAGUS AFTER GASTROSTOMY.

To the Editor of The Medical News,

Sir: In an interesting editorial article in The Medical News, upon "Dilatation of Stricture of the Œsophagus after Gastrostomy," the statement is made in regard to the method advocated by Dr. Victor von Hacker, of Vienna, that "it does not appear that this plan has ever been put into practice." Dr. von Hacker states, in his monograph "Ueber die Magen-operationen, etc., that he recommends the method, because he had obtained a good result in a cicatricial stricture of the œsophagus, by the introduction of a Nélaton catheter stretched over a whalebone guide. In a letter to me, dated July 27th, 1886, he mentions two cases in which the operation of dilatation by the use of drainage tubes attached to filiform guides had been performed; in one of which he states that the operation had already been successful; the other had been but recently performed at the time of writing.

Yours respectfully,

Randolph Winslow.

1 Mount Royal Terrace, Baltimore,
September 14, 1886.

NEWS ITEMS.

PARIS.

(*From our Special Correspondent.*)

Pseudo-insensibility Treated by Massage.—A paper recently read before the Academy of Sciences dwelt at length on pseudo-anæsthetic conditions masking actual sensibility which is aroused by prolonged stimulation. In locomotor ataxia, hysteria, and hemiplegia resulting from brain lesion, this pseudo-stimulation anæsthesia is often present and extends over a limb or one-half of the body.

No effect is produced on these patients by rubbing for a short time, however thoroughly it may be done;

but long-continued friction produces an impression more and more vivid as it goes on. More than this, the revival of sensibility does not only last for the moment, the effect obtained may persist and even increase from day to day. For example, it might be supposed that in people suffering from apoplexy, that after the occurrence of the accident which interrupted the communication between the brain centre and a certain part of the contiguous nerve centres, a prolonged effort must be necessary in order that the impression produced be transmitted and thus reëstablish the connection. Whatever the explanation may be, the fact exists and had already been noticed by M. Legroux. At the present time M. Ball and M. Courtade are making experiments relating to this subject. In the same way that there exists often a latent sensibility only requiring to be aroused, so in other patients the motor power may be dormant, and to reinduce action all that is necessary is to produce excitement by direct stimulation of the muscles. This can be done by electricity, but, when properly managed, massage is quite as good. M. Courtade groups his patients in different classes. There are in the first class persons paralyzed after brain apoplexy. Massage has produced effects on them which are truly surprising; in some instances the condition was recent, in others of long standing, and paralysis was in some accompanied with contracture. A man aged sixty-two, attacked with apoplexy three months ago, walked with difficulty. The left hand was quite useless. After one treatment by massage, lasting half an hour, he was so much better that he could energetically move his left hand and almost walk without a stick.

Another case is that of a sculptor who was attacked with apoplexy five years ago, and remained paralyzed on the left side. After eighteen months in the hospital he left, though walking with difficulty, but was obliged to return, as the upper limb of the left side being useless he could do no work. There was also contraction of the biceps. At first M. Courtade commenced by treating the upper limb with massage; the treatment was applied on four or five different occasions spreading over a month and a half. At the present time the paralysis of five years' standing and the resulting contracture have almost entirely disappeared in the upper limb. As to the lower limb, after massage being applied once it appeared more contracted the next morning, but afterward became much freer.

In a second class are patients who have been paralyzed after an attack of typhoid fever. For instance, a man aged twenty-one had typhoid fever last year and has been paraplegic ever since. He has undergone treatment by massage combined with electricity, and the results, though not yet complete, are still very good. At the present time he can walk with crutches.

M. Courtade has already obtained an almost complete recovery in the case of a young woman paralyzed after an attack of typhoid fever. Another woman, who had had typhoid fever when nineteen years of age, was not attacked with paralysis until eighteen months later, when she was suddenly seized with apoplexy, lost consciousness, and on recovering was found to be speechless and paralyzed in both legs and the right arm. Aphasia lasted six weeks and paralysis of the right arm two years. Later on, the lower limbs suddenly regained the faculty of executing movement. Three years ago the patient recovered the power of walking, but she accidentally fell and the two lower limbs again became paralyzed. She was from that time subject to attacks of hysteria, and presented the general aspect of a hysterical person. It is possible that hysteria being an etiological factor in the paralysis, trophic disturbance occurred. The lower limbs became swollen to an abnormal size; no muscles were distinguishable. The feet were bent and a painful feeling of cramp disturbed the patient's sleep. After the first treatment by massage there was a distinct improvement, which increased on each occasion. M. Courtade was careful that after gradually drawing out the feet they should be kept extended by an immovable apparatus. The pseudo-fat was rapidly absorbed. The legs, which had remained motionless for a long time, can now be raised more than a foot above the bed, and she can get up and dress herself.

The London Hospital Sunday Fund amounts this year to over $180,000, being $25,000 more than it was last year.

Poisoning by Potassium Chlorate.—A workman in Vienna, suffering from inflammation of the throat, was given two ounces of chlorate of potassium, with verbal instruction to use it for a gargle; the only instruction upon the prescription was, however, "a coffeespoonful in a glass of water." The patient's wife gave her husband a spoonful at one o'clock, and another at two, in a medium size tumbler of water, and half a spoonful about five, and another about six. Abdominal pains and diarrhœa set in shortly after taking the first dose. At 7.30 profuse perspiration came on, and, about nine, sleep. At ten the patient became unconscious, and at one in the morning death took place.

A Novel Obstetrical Expedient.—Dr. Shustoff writes in *Russkaya Meditsina* of April, 1886, that he was called to see a woman who had been in labor five days. The pains had begun well, but had since ceased. Upon examination, he saw something black protruding from the anus, and a little pulling brought to light a sausage over seventeen inches long and fourteen inches in circumference. The pains now began again, and the woman was soon delivered of a dead child. Dr. Shustoff found on inquiry that the sausage had been introduced on the recommendation of an old woman of the neighborhood in order to insure the birth of the child by the normal passage. This was probably the old wife's best attempt at supporting the perineum.

Death from Chloroform.—Lady Flora Wilmot died at Swansea, England, after taking chloroform in a dentist's chair for the extraction of a tooth. The anæsthetic was administered by a physician. The patient had taken chloroform twice before without any bad effects. In all, but two drachms were used. All attempts to restore the patient by the use of nitrite of amyl and artificial respiration were of no avail. The physician remarked, immediately after the extraction of the tooth, "I hate giving chloroform for you dentists because you will have your patients sitting up." Both the dentist and the physician were exonerated by the jury which

was called to hold an inquest. *Science* comments on this case as follows: "The evidences of the danger in the administration of chloroform are so overwhelming, except in a few cases, that no one is justified, at the present day, in using it in so simple an operation as the extraction of a tooth; and a jury would be doing its full duty in holding responsible for the death of the patient any physician or dentist who administered it in such a case with a fatal result."

A Fellowship in Pathology yielding five hundred dollars in addition to free tuition, will be granted by the Johns Hopkins University in October, 1886, if a suitable candidate applies.

The application must be made prior to October 1. The candidate must give evidence of a liberal education (including especially physics, chemistry, biology, and modern languages) and of special aptitude for pathological study, such as that afforded by some previous scientific work. The holder of the fellowship will be expected to devote his time to some special line of investigation (not strictly professional) under the direction of the Professor of Pathology. Further information concerning the purposes and the regulations of University fellowships is contained in the Annual Register.

A Fortunate University.—Since 1879 the University of Sidney has received donations exceeding a million of dollars. One bequest, known as the Challis bequest, is expected to realize £200,000. The Macleay Natural History collection, another recent gift, is valued at £25,000, and a sum of £6000 has been promised for the endowment of a curatorship in connection with it. For the purpose of founding a library, a donation of £30,000 was made.

Bombay Hospital for Women.—The *Times*, of India, gives an account of the opening of the Cama Hospital (officered entirely by women) by his Excellency Lord Reay, Governor of Bombay, in the presence of a very large assembly of friends, on July 30. The foundation stone of the hospital had been laid in November, 1883, by his Royal Highness the Duke of Connaught. In opening the hospital, Lord Reay remarked that there was no movement in India in which Her Majesty felt greater personal interest.

French Vital Statistics.—It was stated by M. Bertillon, in a lecture recently delivered at the Hygienic Exhibition in Paris, that the movement of the population for the past year throughout France had been very unsatisfactory, the total number of births being 922,361, or, upon the average, 30,000 fewer than for the last fifteen years. Moreover, out of this total, 74,118 were illegitimate, or rather more than eight per cent. of the whole, this being the largest number of illegitimate births ever recorded. Upon the other hand, there had been a slight reduction in the number of deaths, the total for 1885 being 836,897; but still, the excess of births over deaths was only 85,464.

Smallpox and Vaccination in New York.—The following is an extract from the Fifth Annual Report of the State Board of Health of New York (p. 454, April, 1885): "The objections and occasional resistance to vaccination which are met with among immigrant passengers, indicate a considerable scepticism in European communities, more particularly among the English people, as to the protection afforded by it, or else a fear that constitutional disease will be introduced by that means. The groundless character of the fear that disease will be communicated by vaccication, when proper care is used in the selection of the vaccine virus, has been too often demonstrated to require any argument in this place. The result of the teachings and influence of the anti-vaccinationists is well illustrated by the fact, that in the hospitals of the city of New York not a single case of smallpox exists at this time, while in the city of London the reports have shown for months past an average of upwards of eleven hundred cases in hospital. In New York city, where a 'from house-to-house' inspection and search among the tenement population for the unvaccinated is practised every year, smallpox is not met with, except as it was imported and developed by persons from other localities; in London, the weekly average of new cases, as indicated by bills of health and the number in hospital, has been from four to five hundred. The number of cases of smallpox on vessels that entered that port in 1883 and 1884, was twenty-five."

Ice in the Sick-room.—A saucerful of shaved ice may be preserved for twenty-four hours, with the thermometer in the room at 90° F., if the following precautions are observed. Put the saucer containing the ice in a soup-plate and cover it with another. Place the soup-plates thus arranged on a good heavy pillow, and cover with another pillow, pressing the pillows so that the plates are completely embedded in them. An old "jack-plane," set deep, is a most excellent thing with which to shave ice. It should be turned bottom upward and the ice shoved backward and forward over the cutter.

Doctoring an African King.—The following extract is from the correspondence of the *Scottish Geographical Magazine*: "It is no joke to be doctor to the King of Uganda, for whenever I took him a new supply of medicine I had always to take a dose myself, and to administer one to seven of the persons who might happen to be present. Should one of the seven unfortunates die within a week, it would be considered that I had attempted to poison the king. If the king had to take a pill, I had always to hold two in my hand; he chose one, and I had to swallow the other, unless I had a friend with me who kindly undertook the office. I soon noticed, however, that Mtesa also chose the smaller, so I arranged accordingly. One day Mtesa played me a nice trick. I had been to the palace to take him a lotion, and had warned him particularly not to drink it. After I had left he sent a page after me with a gourd of mwengi, asking me to taste it, and say if he might have some. I did so, and said, "Yes." It being a very hot afternoon, my friend drank the remainder; but it soon became evident that the king had doctored the wine, for my friend became violently sick. It turned out afterward that Mtesa wished to see what effect the lotion would have upon me."

American Rhinological Association.—The fourth annual meeting of this Association will be held at St. Louis, Mo., on October 5, 6, and 7, 1886.

PATENT MEDICINES IN AMERICA. — The *Western Druggist* informs us that recently published statistics state there are 5000 proprietary articles of home manufacture on the American market; 500 of these are of commercial importance, and 50 are run as an independent business. The patent medicine trade of the United States is $22,000,000 annually; of this $10,000,000 is annually expended in advertisements, and the net profit amounts to $5,000,000.

The traffic is the work of the past half century, most of the patent medicines having sprung up since 1830. Not one in a thousand patent medicine men have succeeded. There are five firms which have made $1,000,000 each; twenty others will aggregate $5,000,000, and the net savings of all the rest will not reach another $5,000,000. More patent medicines proportionately are sold in the United States than elsewhere. The great middle class buys most of them. The profits from and expenditures on established patent medicines run about as follows:

Expenses.	Per cent.
Cost of material, labor, and expenses	24
Advertising	12½
Jobbers' expenses	3½
Retailers' expenses	21
Total expenses	61
Profits.	
Manufacturers' profit	12½
Jobbers' profit	5½
Retailers' profit	21
Total profits	39

The smaller country newspapers subsist largely upon advertisements of these "remedies," and at least $100,000,000 have been paid newspapers during the last two decades, while upward of $5,000,000 have been expended in rock and fence advertisements.

The field for new patent medicines is narrowed every day. Cathartic pills and sarsaparillas do not succeed readily, because so many well established specimens occupy the field. Until the stamp tax was abolished, patent medicines yielded the government $1,800,000 annually. The census of 1880 shows that there were then 563 establishments in this line in the United States, employing 4015 operatives; that the capital invested was $10,620,000, and that the value of the annual output was $14,682,000. New York stood first in the amount of capital invested ($3,512,430), and in annual output (nearly $4,500,000); Pennsylvania second in capital invested, $2,000,000, and third in annual output, $1,000,000; Missouri third in capital, $1,500,000, and fourth in annual output, $750,000; Ohio fourth in capital, $570,000, and fifth in annual output, $450,000; Massachusetts fifth in capital, $521,000, and second in annual output, $1,500,000.

PASTEUR'S WORK.—Professor Virchow is reported to have said, in a recent lecture in Berlin, that Pasteur had done the world a great service if he had succeeded only in allaying the fear consequent upon the bite of a mad dog.

HYDROPHOBIA does not exist in Lapland; but two dogs brought from that country having been inoculated by M. Pasteur, contracted rabies, proving that Lapland dogs are not refractory to the disease.

WOMEN STUDENTS IN PRUSSIA.—In virtue of a recent decision of the Prussian Minister of Public Instruction, no women are permitted to attend any of the Prussian universities, either as students or auditors.

SCIENTIFIC EXPERTS AS WITNESSES.—Let us look at this question as it presents itself to men of science, alike to the chemist, the physicist, the mechanician, the geologist, the physician, and the microscopist, though certainly not to the astronomer, who is in no danger of being called, as such, to give his testimony. The expert occupies a totally anomalous position in court. Technically he is a mere witness; practically he is something between a witness and an advocate, sharing the responsibilities of both, but without the privileges of the latter. He has to instruct counsel before the trial and to prompt him during its course. But in cross-examination he is the more open to insult because the court does not see clearly how he arrives at his conclusions, and suspects whatever it does not understand. The late Dr. R. Angus Smith complained of being "contemptuously compelled to herd with thieves and scoundrels in a witness-box." He adds: "I have seen barristers speaking to a scientific witness in such a way as to show that to them a witness was always an inferior person." Surely, every person who has been present at a technical trial, or has had to appear as an expert in a poisoning, a patent, or an adulteration case, will be able to confirm this from his own observation and experience.

Now it may, perhaps, be cynically hinted that men of science should be willing to bear all this annoyance for the public good. But is it for the public good? In the first place, not a few of the most eminent men in every department of science distinctly and peremptorily refuse to be mixed up in any affair which may expose them to cross-examination. "I will investigate the matter, if you wish it, and will give you a report for your guidance, but only on the distinct understanding that I am not to enter the witness-box." Such in substance is the decision of not a few men of the highest reputation and the most sterling integrity. Certainly it is not for the interests of justice to render it impossible for such men to give the court the benefit of their knowledge.

Further, the spectacle of two men standing contradicting or seeming to contradict each other in the interest of their respective clients is a grave scandal. Men of the world are tempted to say that "science can lay but little claim to certainty, and is rather a mass of doubtful speculations than a body of demonstrable truth." To us, at least, there is nothing more saddening than to read the trial of a notorious poisoner, or the report of a great patent case, especially if taken along with the comments of the press and of society on these occasions.

Here, then, we see that our present mode of dealing with scientific evidence is found on all hands unsatisfactory. The outside public is scandalized; experts are indignant; the bench and the bar share this feeling, but unfortunately are disposed to blame the individual rather than condemn the system.

But we fear that this unanimity of dissatisfaction will vanish as soon as a remedy is seriously proposed. To that, however, we must come unless we are willing to dispense with scientific evidence altogether.

As it seems to us, the expert should be the adviser of the court, no longer acting in the interest of either party. Above all things, he must be exempt from cross-examination. His evidence, or rather his conclusions, should be given in writing, and accepted just as are the decisions of the bench on points of law.—*Chemical News.*

An English View of American Medical Schools.—H. W. Jones, M.A., M.D. (U. S. A.), writes as follows to the editor of *Lancet:* "It is by no means uninteresting to a medical man 'abroad' to observe his own country and its institutions through the eyes of foreign authorities. And while we must confess to much that was questionable in the past, it appears at present that the case of medical education in the United States is hardly put with fulness—if, indeed, with fairness. As the effete doctrines of the early Church yet serve as the sceptic's best weapons, so now do the allegations which I here rehearse rise against the 'American system.' We are charged with 'inadequate preparation,' opening the schools to crude and undisciplined minds; with a 'too short and narrow curriculum,' giving insufficient and unbalanced foundation for so serious and important a superstructure; with 'poverty of clinical advantages,' committing students to an unpractical, and, therefore, untrue, view of their future duties; with 'the full degree conferred by any of the too numerous colleges after such a course.' Truly a sad catalogue of errors, if applicable now and generally to the institutions of any country. But a knowledge of all the circumstances will insure material alteration in the scope of these charges and a much closer approximation to the truth. Though I write without statistics at hand, and only from a general acquaintance with the facts acquired by long professional observation, I venture to state that more than half the American graduates have for many years gone out from the three great medical centres, New York, Philadelphia, and Boston, whither have gravitated for the same period the greater lights of the profession as practitioners, teachers, etc. These men, many of them of humble birth, self-taught, having elevated themselves to a great and noble success, do not forget their own origins, and are slow to place impediments in the way of those who have the same aspirations, the same difficult ascent to make. Hence, the moderate requirements of the preliminary examination to be followed in these schools by instruction not easily surpassed in breadth and accuracy, I am bold to say, whether it be didactic or clinical. Here hospitals are numerous and abounding in every variety of material. At Yale and the Cincinnati, Chicago, Michigan, St. Louis, and New Orleans schools the same is true, excepting the restrictions arising from moderate hospital accommodation, which will always vary with population. Here at least a third of the whole number of annual graduates receive their diplomas, and in most of these schools the final or 'pass' examination covers the entire field of study, determining the solid acquirements of the student, rather than what he may have 'crammed' during the weeks previous. In some cases the 'State Medical Society' exercises a wholesome supervision, its delegates taking active part in the oral tests applied to scholarship. Post-graduate courses are often open to the more ambitious student, and to such practitioners of long standing as may desire henceforth to restrict their work to special lines. To 'graduate into a specialty' is not with us *en règle*. It is the 'mushroom school' which gives rise to offences as rank in the nostrils of American as in those of foreign physicians. These spring up in the growing towns of the vast West, partly the offspring of local ambitions and rivalries, partly from a local demand for a not too costly medical instruction, made by the pupils and assistants of neighboring practitioners, or by youths who labor two-thirds of the year to earn the means of defraying the cost of a winter's tutelage in medicine. Few of these ever graduate, and, if they do, few fail to seek their diplomas at a more legitimate fountain-head. The schools themselves meet with early graves, though their example and warning are not long heeded. It is true that all who graduate from these State-chartered schools receive the degree of M.D., and are styled 'doctors,' but in no country in the world does a man so soon find his proper level, whatever his profession or diplomas. It is the absence of social caste, the subordination of influence to real merit, the general indifference to titles, the knowledge that, after all, success must be fought for, which make the American physician so oblivious of the initialed distinctions that obtain in England and elsewhere.

"After all is said, in these days, when science is of common birth and acknowledges no single foster-mother, we may safely claim to be known by our fruits, and one may proudly point to the just and able criticisms of your own columns upon works of American origin for highest testimony to the value and volume of American professional attainment and culture."

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from September 14 to September 20, 1886.

Wales, Philip G., *First Lieutenant and Assistant Surgeon.*—Resignation accepted by the President, to take effect November 5, 1886.—*S. O. 212, A. G. O.*, September 11, 1886.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending September 18, 1886.

Simons, M. H., *Passed Assistant Surgeon.*—Detached from the "Alert," and placed on waiting orders.

Norfleet, E., *Passed Assistant Surgeon.*—Detached from the "Alert," and placed on waiting orders.

Bogert, E. S., *Medical Inspector.*—Ordered to Navy Yard, New York, September 28, 1886.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Two Weeks Ending September 18, 1886.

Austin, H. W., *Surgeon.*—Granted leave of absence for thirty days, September 16, 1886.

Goldsborough, C. B., *Surgeon.*—Promoted, and appointed Surgeon, from October 1, 1886. September 9, 1886.

Yemans, H. W., *Passed Assistant Surgeon.*—Granted leave of absence for ten days, September 16, 1886.

Bevan, A. D., *Passed Assistant Surgeon.*—Promoted, and appointed Passed Assistant Surgeon from September 1, 1886, September 7, 1886. Granted leave of absence for thirty days, September 7, 1886.

Glennan, A. H., *Passed Assistant Surgeon.*—Promoted, and appointed Passed Assistant Surgeon from September 1, 1886, September 7, 1886.

Norman, Seaton, *Assistant Surgeon.*—To proceed to Vineyard Haven, Massachusetts, for temporary duty, September 9, 1886.

THE MEDICAL NEWS.

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AMERICAN GYNECOLOGICAL SOCIETY.

ELEVENTH ANNUAL MEETING, BALTIMORE, 1886.

THE PRESIDENT'S ADDRESS.

Delivered September 22, 1886.

BY THADDEUS A. REAMY, M.D.,
OF CINCINNATI.

FELLOWS OF THE AMERICAN GYNECOLOGICAL SOCIETY:

The "lex non scripta" of this Society not only demands an annual address from its President, but the same authority, as precedented in former addresses, makes it customary for these inaugural words to be to some extent retrospective and advisory.

At this, the beginning of the second decade of this Society, I can but congratulate its Fellows upon the valuable and enduring monument they have erected to Gynecology in its ten volumes of *Transactions*. Further congratulation is warranted from the fact that an examination of current literature in obstetrics and gynecology, together with new books and ably rewritten editions of old ones, will show that much of the best work in the science and practice of these departments has been wrought by Fellows of this Society.

Valuable additions to the departments of science represented in this Society are contributed from all quarters in such rapid succession, as to require unremitting diligence of all who would keep pace with the tide of progress.

The epoch, therefore, is propitious, and since our yearly growth of members is secured largely by the election of comparatively young men of unusual capacity and promise, to fellowship, the belief is warranted that the work of the next ten years, as it shall be recorded in our *Transactions*, will be superior to that of the past.

I have spoken of our growth and flattering prospects, and it is but proper now to speak of our great loss.

We must for a moment turn aside in sorrow.

DR. ALBERT HOLMES SMITH

is dead, the sad event occurring at his residence in Philadelphia, December 14, 1885, since our last meeting. He was a man of high physical and intellectual endowments, and an obstetrician of the very highest skill; a writer of great clearness and force, always practical and instructive. Professionally he had an international reputation. He was an ex-president of this Society. He fell in the prime of his manhood, just as he was steadily and certainly approaching the zenith of a most successful career. He died triumphantly in the full confidence of Christian faith. A Fellow who knew Dr. Smith intimately, Dr. Parvin, whose pen can touch with eloquence and poetry even a subject so sad as death, has agreed to furnish for our *Transactions* an obituary sketch.

I now beg your indulgence while calling your attention to several current topics, some of which seem to me of special importance at the present time. No profound scientific discussion of any will be attempted, for such an effort, in a brief address like this, would be out of place; but such plain and humble criticism or commendation as may give expression to my convictions will be offered.

It may be said that the time during which our Society has been in existence is the abdominal epoch of the surgical age in Gynecology. It has seen abdominal section so developed and perfected that the brilliant achievements of skilful operators have far exceeded the most sanguine expectations of ten years ago. This is not only true of all fields of abdominal section, but especially so of ovariotomy, the pioneer operation in this realm.

It would seem that nothing further is to be desired in

OVARIOTOMY,

when we hear the astonishing report of 139 successive operations without a death. Such success as this challenges our admiration, and stimulates our emulation. It brightens the lustre of the star that stands over Danville, where ovariotomy was cradled. It makes Birmingham the Mecca for ambitious gynecological pilgrims from all the surgical world.

Phenomenal success, however, is not confined to Birmingham, Edinburgh, or London. Skilful hands are busy everywhere, and remarkable results are reported from all quarters. The statistics of American operators are constantly improving, in some instances reaching a high standard, although they have not yet reached the high mark attained abroad. The exact reasons for this discrepancy await demonstration. It is probable that the explanation will be found largely in climatic influences and constitutional conditions.

Again, it is unquestionably true that, in our own country, the operation is essayed by a relatively larger number of operators than abroad. In England and Scotland especially, it is done chiefly by a few of exceptional skill, and so far as practicable this practice should be the rule everywhere. These facts must have important bearing upon the statistics of an operation which, perhaps above all others, demands in those who perform it that coolness of judgment and especial intelligence which can only come from a large practical experience.

We have already seen that surgical results are eminently satisfactory so far as relates to cystic disease of the ovary which imperils life. But is the operation of removing the ovaries for supposed beginning "cystic degeneration," "cirrhosis," "catarrhal salpingitis," "chronic catarrh of the tubes," "stenosis," "congestion," "enlargement," always justifiable? I trow not. Have not the glowing reports of such cases, and the cures wrought, together with the facility of the operation and its comparative immunity from danger to life, led to the extirpation of many a sinless ovary? How often

in our experience have we met cases with the constant pelvic pain and its various reflexes, with a tender ovary slightly displaced, or some tortuous body about the uterine fundus, which we thought was the "congested," "hypertrophied," or dilated tubes; in short, having a clinical history, and physical aspect, incapable of differentiation from those cases from which we hear of ovaries being removed, and yet we have seen them cured by a patient recourse to diet, massage, electricity, vaginal irrigations, medication of the vaginal vault and cervix, rest of body and mind, postural treatment, etc.

Such occurrences are so very frequent in our everyday practice as to be painfully suggestive of too much freedom with the ovary, considering our want of familiarity with its minor pathological changes. The truth of this remark is in no way invalidated because of recent attempts in high quarters to settle this whole question on clinical testimony exclusively.

Dr. Coe has recently written an exhaustive paper on the slight pathological provocations which have been deemed sufficient cause to warrant the extirpation of ovaries. His conclusions, supported as they are by abundant, able, and intelligent investigation, are not of a nature restful to the consciences of any who may have been over-zealous in performing spaying, without due discrimination. It has been our wont to congratulate ourselves upon the great benefits which have accrued to humanity by the perfection and practice of ovariotomy, and justly so. Numerous and ingenious statisticians have delighted us with computations of the sum total added to human life by this single operation. To these gratifying statistics of alleviated suffering and respited death we have ever pointed with pride. We have so often adduced these figures to demonstrate the wondrous progress of our art, and offered them in expiation for what we considered the blunders of our drugging, dosing, and bleeding forefathers. I greatly fear, however, that somebody will one of these days show the other side of the picture, that some ingenious statistical cynic will compute the years of human life lost to the race by this destruction of ovaries of which the functional activity is yet unabated, and the structure of which yet bears many possibilities for population.

There has been entirely too much constructive pathology written upon the ovary. Much of the pathology has, I fear, been created in order to justify the removal of functionally active ovaries after they have been extirpated. We need the "fiat lux" of a practical pathology, sustained by the most extensive comparative investigations upon healthy and unhealthy ovaries. A humane and economic conservatism should keep our fingers off these organs until we know whether they are yet capable of discharging their function, or whether they are physiologically dead, or whether their possessor can be cured without their sacrifice.

The recent praiseworthy practice of Schröder in leaving the healthy portion of the ovary when possible, in the extirpation of ovarian cysts, is a movement in the right direction, and in every case of removal of the ovary or tubes for minor disease, if the operation must be done, but one ovary should be extirpated unless positive disease of both be detected on exposure.

If pathological processes destroy the ovaries or occlude the tubes, the patient is unsexed by disease, and then we may consider the propriety of removing these appendages only when we are convinced that such is unquestionably the case, and that their removal will probably cure the suffering. Again, many of the remarkable cures reported after this operation must be taken "cum grano salis" until such time has passed as will preclude the possibility of a relapse, or at least render it improbable. Time will, I fear, much change the aspect of some reported cures; this opinion is not wholly speculative.

Let us as a society and as individuals do our duty toward women by proclaiming and practising against this unsexing enthusiasm. Can we not take some steps toward the establishment of some hard and fast lines for the government of this practice?

In all the foregoing let not one word be so interpreted as to detract one iota from the boon conferred upon suffering women by the performance of spaying in properly selected cases. Abdominal surgery has conferred no greater blessing, nor shone with brighter lustre, than in the rescue by these operations of certain subjects curable by no other means, from death or a life worse than death.

The triumphs of ovariotomy have led to a broad field of possibility in abdominal surgery, both for the gynecologist and the general surgeon. It has demonstrated the fallacy of the old ideas of peritoneal intolerance. Peritoneal tolerance is now so well established that we are hardly astonished at the maxim "when in doubt open the abdomen." The success of ovariotomy and the development of its technique, have opened the way for many brilliant achievements at the hands of general surgeons. Notable among these are gastrotomy, nephrectomy, enterotomy, hepatotomy, and section for intestinal wounds.

One of the recent innovations of abdominal section, is its employment in

SUPPURATIVE PERITONITIS,

and the reports from this practice in England are highly satisfactory. It is fortunate that a procedure so rational as opening the abdominal cavity and free washing of its interior, as a treatment for suppuration, has met with such success in its very inception. It is, in my opinion, destined soon to become the established practice. The programme promises a paper on this subject from the pen of an able Fellow.

ALEXANDER'S OPERATION

may be said to be just entering upon its trial, since it has been performed in all countries combined less than 150 times. Anatomically and mechanically considered, it unquestionably rests upon sound principles, and it seems probable that it will have a future. It must be confessed, however, that since its mortality is variously stated at from one to six per cent., its utility should be tested with great caution and conservatism. Especially so, as when it is successful it can only relieve retroversion and prolapsus, conditions generally remediable by other means absolutely safe.

Moreover, even in the hands of experts, the operation has in quite a number of instances signally failed. It may be further stated, I think justly, that the subsequent clinical history of many of the subjects who have been apparently relieved by the operation will show relapses, for it is very doubtful whether in many instances the

uterine deviation was primarily due to abnormal length of the round ligaments. It is more likely that the lengthening of the ligaments is generally a result of uterine displacement, and will recur as a result of the cause which originally produced the malposition.

SIGNS OF PREGNANCY.

Since the formation of this Society nothing of importance has been added to our ability to diagnosticate early pregnancy. Hegar's sign, a slight relative change in the form of the uterus, has been offered, but it is no more decisive than many others of a similar character. Moreover, this sign is not new. Our manifest inability to detect early pregnancy is the opprobrium of obstetrics. Is it not probable that nature hangs out somewhere an unequivocal sign of this most important event in the animal economy, early in its career, and that we may cherish the hope that the near future will read its disclosure to the profession? As the programme pledges a contribution to this subject by an able Fellow, we shall await its revelations with interest.

During the period under consideration the attention of gynecologists has been so riveted upon surgery, and especially abdominal surgery, that they have neglected the subject of diagnosis. This important feature as a preliminary to rational treatment has made almost no progress since the beginning of the present surgical era.

ABDOMINAL SECTION AS A MEANS OF DIAGNOSIS

in doubtful cases is most valuable, but its character as a piece of surgery in itself, its danger and the time required for its employment, and the necessity for special skill, all preclude a very general utility. Again, the recourse to this practice for differentiation has made us less reliant upon the old-established methods. We should develop and perfect our methods of diagnosis by clearer directions and conceptions concerning the information to be gained by inspection, palpation, percussion, auscultation, and by a keener appreciation and analysis of subjective symptoms, and a more judicial interpretation of each history. There is a large field of promise here offering a rich harvest for patient and intelligent investigation. We seem to have lost sight of the importance of diagnosis as expressed by the adage, "qui sufficit ad cognoscendum sufficit ad curandum." High diagnostic skill is the first essential in successful practice, and the foundation stone without which rational therapeutics is impossible.

Partly as a result of deficient ability in detecting disease, and partly from the extraordinary attractions afforded by surgery in the treatment of the diseases of women, we have suffered a dearth in

THERAPEUTICS.

The scarcity of literature and investigation upon this subject is greatly to be deprecated. We should expect from this source a powerful adjuvant, in combating the surgical tendency of the times. The discovery of some remedy with a special action on the ovary might in many instances prove an ovarian saviour. In all the *Transactions* of this Society you have contributed but five papers on medicinal therapeutics. This neglect of medicine is not confined to this Society; it is one of the derelictions of all countries in this field.

Dr. Meadows, in his address in obstetrics before the last meeting of the British Medical Association, speaking of our sins of omission toward medicines, said; "It may be an Utopian idea on my part, but I confess I do not see why we should not possess a group of remedies whose action on the ovary or the uterus should be as well known and understood, and as certain in their results as are the actions of diurectics on the kidneys, purgatives on the bowels, and cholagogues on the liver." However Utopian such an idea may be, it is at least suggestive of our want in this direction, and promise to labor in the field.

ELECTRICITY

as a therapeutic agent in gynecology, has been swaying in and out of general favor. It has run the gauntlet of extravagant enthusiasm on the part of its over-zealous advocates on the one hand, and the condemnation of faint praise from those lukewarm in its advocacy on the other. Its utility as one of the most extraordinary agents in our power is at last well established, and from many quarters we are receiving clearer directions for its employment, and more rational explanations of its *modus operandi*. It has, however, not yet received the general and intelligent trial at the hands of the profession which it deserves. This agent has fought its way to the front through a most obstinate scepticism, bred largely of ignorance of the indications for its use, and methods of employment. In this country no one has done more to popularize electricity in gynecology than a distinguished Fellow of this Society in the pages of his own journal.

As an index of the favor and appreciation which this subject is receiving, I take pleasure in referring to our present programme, which promises three contributions upon the therapeutic value of electricity. I am sure, when we bear in mind the accomplishments and character of these contributors, we are justified in expecting classical additions of high merit to our knowledge in this direction.

Its use in extrauterine pregnancy is at last getting the attention it merits. Its value in this field has been especially pointed out in the *Transactions* of this Society. Dr. Aveling, the first to employ this treatment successfully in England, has just read an interesting paper, with cases, before the British Medical Association. Even the limited trial it has received, has demonstrated beyond doubt that it is the safest and most effective treatment yet proposed in this perplexing "lapsus naturæ." It is worthy of note that this treatment was first employed, and its value demonstrated in this country, by Dr. J. G. Allen, of Philadelphia.

The treatment for extensive fibroid disease of the uterus occupies no small chapter in the gynecological annals of the past few years. Medicinal treatment for these growths has been tried faithfully and abundantly, and in the main unsatisfactorily; though, in some instances, good results have followed the use of ergot and electricity. The latter agent has been employed with commendable enthusiasm and patience, especially by Apostoli, with results very encouraging. It probably has a more general value than any other therapeutic treatment yet applied to this condition, and its employment is becoming more and more popular. I have myself had some admirable results with the agent in arresting growth in these cases.

HYSTERECTOMY FOR UTERINE FIBROIDS

has been swaying to and fro in professional favor. Recently it has received a most wonderful impetus in the remarkable results obtained by Keith and others, particularly in Scotland and England. From a previous general mortality, varying from fifty to seventy-five per cent., Keith reports a series of cases with a mortality of only eight per cent. Schröder, whose statistics are probably the most favorable offered by any large operator in Continental Europe, has had a mortality of about twenty-nine per cent.

The question was asked by Keith, the most brilliant operator in this field: "Does a mortality of eight per cent. justify an operation for a disease that, as a rule, has only a limited active life, and that only for a time, though of itself it rarely kills?" It certainly suggested a negative answer to his mind, and in view of the much greater fatality generally following the operation, should inspire a similar reply from all.

Spaying in the treatment of extreme cases of uterine fibroids has met with more general favor and success than any other surgical procedure. It is attended with far less danger and is usually much more easily performed. The objection that it unsexes the patient is here not pertinent, since a fibroid of the uterus sufficient to justify the operation is in itself an unsurmountable barrier to fertility. It is in this operation for inducing an artificial menopause that we find our safest refuge in these tormenting cases, although there are a few where life is manifestly imperilled and the very large size of the tumor with complications renders the removal of the uterine appendages impossible, that recourse to the grave operation of hysterectomy may be justifiable. It is also probably true that in all fibrocystic tumors of the uterus, as well as in all suppurating ones, hysterectomy offers the only hope. Of course, nothing here applies to intrauterine tumors or such submucous ones as may be safely removed *per vaginam*.

The past decade has been especially fruitful in measures for preventing, and methods for overcoming those cases of more

SEVERE DYSTOCIA,

the difficulties and perplexities of which have hitherto required the grave operation of craniotomy. Improved hygiene, wiser sanitation, and such legislation as the Factory Act in England, are acting in happy combination to prevent those frightful pelvic deformities which have been such barriers to maternity and have compelled obstetric ingenuity to devise the various implements for infant destruction. Relief is also coming through the development and perfection of the Porro and Porro-Müller operations and laparo-elytrotomy each in its proper sphere. In the lesser degrees of pelvic deformity, premature labor, turning, improved forceps and their more skilful use.

The emancipation of the Cæsarean section from the ban under which it had been placed by Baudon in France, and Spaeth in Germany, has been conducive to the same end. This result has been largely due to the indefatigable labors of Dr. Harris, who, by persistently calling the attention of the profession to the possibilities of Cæsarean section as shown by a careful examination of all the literature on this subject, has demonstrated its past successes and future promises as an obstetric procedure.

Our chief reliance as an alternative to craniotomy, at least in cases of pelvic deformity where the conjugata vera is below two and one-half inches, is to be placed in the Sänger-Leopold operation, and what more convincing assurance need we offer than the fact that during the year ending with June, 1886, there were twenty Sänger operations in Europe with a loss of only two women?

Notwithstanding these remarkable results, the same confession must be made regarding this operation in this country, as regarding ovariotomy, although in this case the discrepancy against us is infinitely greater. For out of a total of thirty-eight Sänger operations reported up to date, with twenty-six successful, five were done in the United States, all of which were fatal. There can be little doubt that a strong element in this unfortunate showing for us is the failure to realize the importance of early interference. It is insisted upon by Dr. Harris, that, other things being equal, the danger to the mother is much increased when the operation is done after the death of the child.

Circumstances have environed this operation in this country that have existed nowhere else, at least to the same degree. With us the operation is almost never done until long waiting and protracted efforts at delivery by other methods, together with death of the child, have brought the patient to death's door. Indeed in many cases she is not only exhausted but septic. When the operation is done here as abroad, deliberately, early in the labor, as a primary and only measure, our results will be satisfactory. And this practice will soon be the rule.

It seems to me probable that the practice of deliberate destruction of the infant is being gradually encompassed about by a constantly narrowing circle of limitations, and it requires neither a seer's vision nor the spirit of prophecy to see in the near future this circle reduced to a vanishing point, to see a full fruition to the hope that craniotomy shall be abolished and the instruments devised for its perpetration relegated as curiosities to museum shelves.

THE TOTAL EXTIRPATION OF THE UTERUS FOR CANCER

has enjoyed a remarkable renaissance since the organization of this Society. It was already constantly gaining favor in Germany, in view of the good results obtained notably by Schröder, Martin, Sänger, and Fehling. But the recent extraordinary report by Leopold of thirty-eight operations with but two deaths must assure its acceptance as an approved measure. It is somewhat noteworthy that by all odds the largest number of successful operators in this field are Germans. It is true, also, that the most rational method of performing the operation is the one devised by Dr. S. C. Lane, of California.

The merits and demerits of the operation have been discussed in this country with signal ability by two members of this Society. The operation is not extensively practised in this country, but there is now a growing disposition to give it a fair trial. It may seem presumptuous to offer objections to an operation which stands approved by such strong clinical evidence, more especially when the disease for the cure of which the

operation is done is one that is necessarily fatal. Nevertheless I must confess that so far as I have been able to examine the clinical proof offered, it is not convincing. The patients have survived the operation, and have been in some instances improved, but have they been cured? As to total aggregate results, has life been prolonged? I must reaffirm, what I have already expressed in the *Transactions* of this Society, my own belief that it is not yet proven that the operation is justifiable except in rare instances where the disease is confined to the body of the uterus, the cervix and vagina remaining comparatively free.

The operation is also undoubtedly justifiable in all cases of spindle-celled sarcoma of the body. In such cases there is little or no danger of involvement of adjacent connective tissue lymphatics. Nor is it usual under such circumstances for metastasis to other organs to occur. Removal of the uterus, therefore, if timely accomplished, offers prospect of cure.

Current opinion with clinicians of largest experience, recognizes the probable truth that

EPITHELIOMA OF THE UTERINE CERVIX

is primarily a local disease, and that ordinarily the cells do not invade the surrounding tissues for a long time after its manifestation. The view that in a large proportion of these cases the development of this disease is related to the traumata of parturition, is not so universally held. A most distinguished Fellow of this Society has very recently expressed his dissent from this view, as follows: "I have yet to witness any evidence that chronic inflammation, congestion, or laceration of the uterus, predisposes to malignant disease of any kind." (Byford, Pepper's *System of Medicine*, vol. iv. p. 275.) *Per contra*, an equally distinguished Fellow in the British Medical Association, held at Brighton in August, uttered the following language: "Referring to the effect of fissure of the cervix he was convinced that one point had been brought clearly and certainly home to his mind, namely, that epithelioma of the cervix was commonly secondary to, and the direct result of, a previous fissuring of the neck of the womb." (Emmet, *New York Medical Record*, Sept. 11, 1886.)

After a careful clinical study of this subject, in a large number of cases, I unequivocally commit myself to the belief that the cervical traumata of parturition strongly predispose to the development of epithelioma. It has been shown by Veit that the so-called cicatricial plug left after laceration is simply indurated connective tissue. It is also well established that epithelioma commences, as already stated, in the mucous membrane. In six cases, within the past three years, I have removed the neoplasm while it was yet confined to the mucous membrane immediately covering the indurated connective tissue resulting from laceration. Why this should be so is, of course, not known, but that it is due to impaired nutrition of the overlying epithelium is certainly probable.

It is significant, in this connection, that such a large proportion of the subjects of this disease are women who have borne children, or had abortions. In an experience of thirty years, embracing many hundreds of cases, I have seen but three instances of cervical epithelioma in the virgin.

Emmet's operation for restoration of the cervix to normal conditions in cases where a manifest fissure exists, is, in my opinion, warranted upon the sole ground of prophylaxis against malignant disease, if upon no other. Clinical experience on all hands warrants the early and thorough removal of the cervix when malignant disease is developed, and has not extended too far for its complete eradication. The number of cases thus cured is now so large as to justify the brightest hopes for the future; radical cure in a considerable proportion of cases is no longer a question for discussion. My own clinical experience in this field is in perfect agreement with others. The method of operating, so it be thorough, is by no means so important as time.

THE CURETTE.

I shall now conclude these remarks with some observations on the uterine curette; and lest this seem to you a trite and trivial subject for occupying your time, let me preface with the statement that during the past few years in my own practice, alarming symptoms have followed its use in several instances, and in one case the result was fatal.

To speak of these experiences in this public way is the more imperatively my duty, because in a brief paper upon the use of this instrument, read by me before the Ohio State Medical Society, in 1878, the following language occurs: "Indeed, as to safety, I do not remember, nor have I the notes of, a single case where any serious consequence followed the employment, or were in any way whatever traceable to its use."

With a very much larger experience, I am bound now to say that dangers which cannot be foreseen, sometimes attend its employment. Nevertheless, I employ it almost daily, and fully concur in the general belief that it is the most efficient means we possess for controlling intractable pathological uterine hemorrhage. Of course, no one thinks of its employment, or, indeed, of any kind of intrauterine medication, in any case where periuterine inflammation exists, but it is frequently employed immediately upon the removal of tents where dilatation seemed necessary.

Against such practice I wish to enter an emphatic protest. Within the past year I removed with the blunt wire curette, small portions of retained and organized placental tissue from a patient who had given birth to a child ten months previously, and who had suffered from menorrhagia for the past four months. The character of the substance removed was verified by microscopic examination. The curetting was done immediately upon the removal of three small tupelo tents which had been inserted twelve hours previously. This patient died on the sixth day, of septicæmia.

Within the past few years I have rarely employed any form of curetting immediately upon the removal of tents without suspicious rise of temperature or pulse, or both, and in eight cases peritonitis has been well marked; in three of them the attack was severe and dangerous, although recovery occurred in each. Within the same period, although I have used the curette in hundreds of cases, peritonitis has not been developed in a single case where dilatation had not immediately preceded it.

It is, perhaps, also worthy of note, that in many of these cases where I have used the curette without unpleasant symptoms following, it was done at the same sitting with trachelorrhaphy, perineorrhaphy, or both.

I will further state that I believe the danger in these cases to be just as great after the tupelo tent as after the laminaria. Indeed, I must say I regard the high claims of superiority for the tupelo tent over the laminaria, as expressed on all hands, to be unfounded. As a matter of fact, the surface of the tupelo tent, on removal, is rougher than the laminaria, therefore inflicting greater injury to the tissues.

It is perhaps useless to state that I have not for several months, and shall not hereafter, immediately follow the removal of tents by the curette.

Rapid dilatation, which has recently been so popularized by the writings of a distinguished Fellow (Goodell), is alleged to be comparatively free from the dangers attendant upon the dilatation with tents. This view commends itself as rational. Certainly there could not be the same danger, *cæteris paribus*, in immediately following this method of dilatation by the curette. Time and further clinical experience, however, must determine more fully this question. In my own practice I am now employing this method of dilatation in all suitable cases. In one case peritonitis followed this method, the patient recovering.

I close by reference to the following somewhat peculiar case:

In July, 1881, I was consulted by a woman residing in Greene County, Ohio. She was thirty-four years of age, the mother of two children, the youngest four years old. An abortion had occurred one year subsequent to the birth of this child. The woman was below medium stature, a blonde, of decidedly nervous temperament, with the scrofulous type of fibre although there was no evidence of this taint. She was anæmic and feeble; she reported rather profuse menorrhagia for the past year, and during the intermenstrual period rather copious leucorrhœa, the discharge at times somewhat cheesy, at others tinged with blood. An examination showed an old laceration of the perineum, extending to the sphincter ani but not dividing it. No laceration of cervix. The vaginal walls were very flabby and relaxed. The injury to the pelvic floor was so great, and had existed so long, as to be followed by uterine descent and retroversion. The uterus was enlarged, measuring three and one-fourth inches, freely movable and not tender. No pelvic tenderness could be detected. She was placed upon iron, liberal diet, cold sponging of surface every morning, with friction. Under this treatment her anæmic condition was improved and the menorrhagia decreased.

The following September, in the presence of Dr. Wm. H. Wenning, now Secretary of the Cincinnati Obstetric Society, and my assistants, the patient being etherized, I proposed to curette the uterus, and at the same sitting to restore the perineum. The instrument employed was the blunt copper-wire curette very similar to but not the exact pattern of Thomas's, the patient being in the lithotomy position. No dilatation was necessary as the os was quite patulous, the curette entering the cavity with ease. The instrument was swept over the posterior and lateral uterine walls and a large amount of fungous tissue removed, showing under the microscope enlarged and distended glands, with the bloodvessels increased both in number and size, and embedded in a gelatinous mass. It was now carried over the anterior wall from the fundus with like results. During the manipulation no violence whatever being practised, as indeed none could be with an instrument so flexible, the curette suddenly passed in to a depth which brought the handle to the vulvar opening, to which I called the attention of Dr. Wenning, stating at the same time that I believed it had penetrated the anterior uterine wall, which opinion was at once verified.

Withdrawing the curette, Simpson's sound was carried in, the concave looking upward, and passed at once to its full length, nearly twelve inches, without resistance. Through the very thin and flaccid abdominal wall the point of the sound could be so very distinctly felt on a level with the umbilicus as to give the impression that nothing but the skin intervened between the sound and the fingers. I now moved the point of the sound right and left through a distance of three or four inches. The position of the distal end of the sound could be easily seen as it lifted up the abdominal wall. It is needless to say that further curetting was not done, and the perineorrhaphy was postponed. Before the patient had recovered from the ether an ice-bag was placed upon the abdomen, and when she had rallied forty drops of tincture of opium were given by enema.

She was not informed then, or subsequently, of what had occurred. On the morning of the following day the temperature was 99.5°, the pulse 80; no tympanites or abdominal pain. The temperature and pulse remained about the same until 2 P. M., when both gradually returned to the normal, where they remained throughout. The ice-bag was kept on continuously for five days. No pain and no symptoms at any time, and the patient left her bed in ten days. At the expiration of six weeks, in the presence of Dr. Wenning, the perineum was repaired and a perfect result obtained.

This woman is still living, with no return of menorrhagia, although she is still in rather feeble health. The extremely fragile condition of the uterine wall in this case, in view of the woman's subsequent history of fair though not robust health, is to my mind more mysterious than the fact that peritonitis was not lighted up by the rude manner in which the peritoneal cavity was invaded.

At the conclusion of his address, Dr. Reamy endorsed in strong terms the proposition which had been made to the Society to join with the Surgical and other special societies in a Congress.

ORIGINAL ARTICLES.

THE "PIG-BACKED" OR ALCOHOLIC KIDNEY OF DRUNKARDS.

A CONTRIBUTION TO THE POST-MORTEM DIAGNOSIS OF ALCOHOLISM.[1]

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I WISH to invite attention to a certain peculiarity of the kidneys of drunkards. It concerns the gross anatomy and appearance of these organs, and chiefly their shape. A certain constant naked-eye appear-

[1] Read at the meeting of the Association of American Physicians, Washington, June 28, 1886.

ance of the kidneys of hard drinkers on the autopsy table appears to me diagnostic of alcoholism. It is due to a chronic, venous, or passive congestion, leading to a cyanosis and sometimes to œdema of the kidneys, giving to these organs a peculiar swollen, rounded shape, which I am in the habit of designating as the "pig-backed" kidney. It differs essentially from the renal cyanosis of cardiac disease. It differs also from Bright's disease, and I believe it to represent an independent kidney affection.

While I have been pointing out this "pig-backed" kidney for some time in my laboratory demonstrations, and lately have repeatedly shown specimens of it in connection with other lesions of alcoholism before the Philadelphia Pathological Society, I have not as yet published a detailed account of this peculiar and fatal kidney affection. I am not aware that any of the authorities on renal diseases have studied or described this kidney lesion of drunkards, which I believe to be a quite interesting and significant one.

A word of comment upon the character of the material that has been under observation is necessary. I do not intend here to consider the general morbid anatomy of the kidneys of the universal "moderate" drinkers, since these individuals eventually die of any kind of ailments and with any kind of kidneys, often dying from exposure, carelessness, and irregularities in diet and life incident to the state of drunkenness, and perhaps not at all from the direct effects of alcohol.

The class of cases which I shall chiefly consider in this communication is one to which the coroner is more often called than the practising physician. I have selected only those cases where the person died more or less suddenly, where the history and general appearance clearly showed that death was due directly to alcoholism, and where all other factors in causing death had been carefully excluded as far as possible. I have particularly excluded such cases in which the persons had primary heart disease and other affections known to produce renal cyanosis. Most of the subjects had been in good general physical health, but having been inveterate drunkards and nearly always intoxicated, died while on a debauch, or, in rare instances, after a brief illness following it.

Through the kindness of the Coroner of Philadelphia who, of necessity, is called upon to issue death certificates in such cases, I have had, during the last two years, the opportunity of making observations which some time ago numbered *two hundred and fifty cases*, belonging strictly to the category above referred to, and mainly from my own autopsies. In this city with a population of about one million, there are annually nearly two thousand cases of sudden death subject to legal inquiry. The proportion of cases of alcoholism appears thus remarkably large. I am indebted to my colleague, Coroner's Physician Stewart, for some of his autopsy material and his corroboration of the "pig-backed" kidney, and to Drs. George H. Chambers and A. Smith for valuable assistance in these observations.

A. Anatomical Considerations. I have met with two varieties of the kidney lesion now to be described:

First, a hard cyanotic form of the "pig-backed" or alcoholic kidney, in cases of sudden death; and

Second, a soft œdematous form of the same, in cases where death had been delayed.

First form: In nearly all persons who died more or less suddenly from the direct effects of alcohol, I found the kidneys to present the following appearances: The kidneys are always above the normal size; they are often from one-third to one-half larger, and are sometimes even double their usual size and weight. They are longer and thicker than normal, while their width is diminished, so that the natural, characteristic flat kidney, or bean-shaped form, is changed to a swollen, rounded, sausage-like or "pig backed" appearance or form. They are bluish-red or livid in color from being engorged to their utmost capacity with venous blood, reminding one of the rounded enlarged appearance of animal kidneys when overfilled by some artificial injection mass. In most cases these "pig-backed" kidneys are elastic, but quite hard when freshly removed from the body; but unlike the cyanotic induration from heart disease, they gradually become softer, unless the renal vessels are at once tied to prevent escape of blood from them.

On section the cut surface presents the same dark red or livid appearance as seen in the cardiac form of renal cyanotic induration. While in the latter, however, the pyramids of the medullary substance are especially congested, in the alcoholic cyanosis the whole kidney substance is almost uniformly dark red. Dark blood oozes from the cut surface and blood extravasations can be often seen by the naked eye, principally below the capsules.

Second form: The other form of the alcoholic kidney referred to, was met with in persons who had died some time after a debauch (suffering from a few hours to a few days from delirium tremens previous to death). The kidneys of such subjects are found to be soft and flabby from œdema, and they are less red; otherwise presenting the same appearance as the hard variety of alcoholic renal cyanosis, including the "pig-back" shape of the kidneys.

In either form of this kidney lesion the capsule strips off easily, the surface is smooth, but often lobulated, not unlike the lobulation seen in congential conditions. If the alcoholic lesion is not complicated by heart disease, the "pig-backed" kidney is less heavy in proportion to size, and less firm and tough and also less dry than the kidneys of the pure cardiac renal cyanosis. This is probably due to the greater amount of blood present and to the accompanying œdema, which I have not seen in the cardiac variety.

In the purely cardiac affection, however enlarged, the kidneys retain their natural flat shape. This may be explained by the fact that in the latter case the morbid change is slow, gradual, and uninterrupted, and the resulting change (the induration from the connective tissue overgrowth) is a permanent one—whereas in the alcoholic cyanosis the process is rapid and intermittent, the effects of the alcohol being paroxysmal with each debauch and the mere resulting congestion receding more or less during

the intervals of sobriety. It is probable that in the latter case the kidneys may return temporarily to their normal condition and shape.

A transverse section through the middle of the kidney from a case of alcoholic cyanosis is sometimes nearly circular, while a similar transverse section through a normal kidney or one of a cardiac renal cyanosis is oval or wedge-shaped and at least twice as long as broad.

Both kidneys are equally affected, sometimes the upper ends are found to be flattened or compressed anteriorly from pressure exerted by the enlarged liver on the right, and an enlarged spleen on the left side; the left kidney, as a rule, was more often found to be of a typical "pig-backed" shape than the right, and more frequently compressed at its upper end.

One hundred specimens of these kidneys were weighed and revealed the average weight of 250 grammes or a little over seven ounces—about two ounces over the normal average weight. The average variation in size and weight between the right and left kidney was insignificant.

A certain proportion of the 250 cases included in my records showed, besides the alcoholic renal lesion, appearances of Bright's disease. It is difficult to draw in all instances a definite line between these two lesions, but I would say that in about 10 per cent. (or in 25) of the cases Bright's disease was evident. In 16 of these cases chronic catarrhal nephritis with formation of small cysts was noted; and in 9 cases chronic interstitial nephitis or a tendency to the granular contracted kidney was apparent. But, however affected otherwise, the "pig-back" shape of the kidneys was always a conspicuous feature in these cases. It appears that this chronic venous congestion (and œdema, when present) of alcoholism affects structurally diseased and normal kidneys in the same manner and manifests itself alike in both.

B. The cause of the "pig-backed" shape in the alcoholic renal cyanosis. The reason why the alcoholic kidney presents the roundish swollen shape is because the organs are over-distended with blood and serum, the kidneys acquiring the properties of, and in extreme cases may be compared with, true erectile or cavernous organs.

A "pig-backed" shape of kidneys can easily be induced experimentally in animals when the renal veins are tied or when kidneys removed from the body are artificially injected with a liquid.

Experiments have also shown that a hypertrophy of one kidney follows the removal of the other kidney, and under these circumstances I have seen the remaining kidney enlarge to double its natural size and acquire a typical "pig-backed" shape from being overfilled with blood.

A nearly similar appearance of hyperæmia of the kidneys may be seen in cases of acute fever, particularly, in cases of infective fevers of children when death occurs during the height of the attack.

The loss of the flat kidney shape may be compared also with the loss of the biconcavity of red blood disks or corpuscles which when immersed in any liquid which they absorb become spherical bodies.

C. Microscopy. Sections were made from a number of specimens of the alcoholic kidneys, care being taken to examine microscopically all the different structural parts of these organs. For brevity's sake, only the essential changes will be referred to.

The cortical and medullary portions of the kidney appear to be similarly affected, but, as a rule, the latter less so than the former.

In the hard, cyanotic form of the alcoholic renal cyanosis the Malpighian glomeruli of the cortical portion are highly congested, and extravasated blood is seen within many of the Malpighian capsules; some are enlarged to double their normal size, but the majority appear rather compressed by the surrounding swollen uriniferous tubules and by the over-distended blood-vessels. The latter (both arteries and veins) show thickened walls and are deeply congested nearly everywhere throughout the organ. The stellate veins in particular are enormously distended and plugged up by blood corpuscles as if thrombosed. The lymph spaces beneath the capsules as well as around the tubules are also dilated and distended, and are either seen empty or they contain extravasated blood. In some sections the kidney structure gives the appearance of a cavernous change.

The epithelium of the convoluted tubules is cloudy, swollen, opaque, and the nuclei obscured by granules, which, however, become cleared up upon the addition of a solution of sodium hydrate. The epithelial cells appear to be double their normal size and although no visible desquamation or proliferation of the cells could be noted in any one of the typical specimens examined, it appears that the lumena of the tubules are obliterated completely, as seen in transverse sections of the tubules.

In the straight tubules of the medullary portion the same changes have been noted, but are less marked.

The connective tissue elements of the pure alcoholic kidney show no pronounced hyperplasia. In the sections of most of the kidneys it is hardly perceptible. Sections in which the epithelial lining was forcibly removed by means of a camel's-hair brush showed the connective tissue to be dense, stiff, often pigmented, but only moderately increased in a few places around the bloodvessels.

The connective tissue increase was notably prominent only in sections derived from occasional specimens which showed at the same time other evidences of inflammatory changes (Bright's disease), and in cases complicated with heart disease. I do not remember having seen in one of the sections of the pure alcoholic affection tube-casts or blood within the uriniferous tubules.

In sections from the soft, œdematous form of the alcoholic kidney, the minute changes were essentially the same, but not so marked as those described above. Extravasations of blood were less frequently seen, while the connective tissue elements appeared occasionally more or less proliferated. In sections from some cases, however, no other change could be observed than the very prominent cloudy swelling of the epithelium peculiar to all the specimens of the alcoholic kidney.

I do not think it necessary to describe the sections

from the few cases in which Bright's disease and the alcoholic renal cyanosis coexisted.

D. Pathology. From the above studies it appears that the exact position of the "pig-backed" or alcoholic kidney in morbid anatomy is as follows: there are, as stated before, two forms or perhaps stages of this lesion. *First*, a *chronic or venous congestion with cloudy swelling*, or a renal cyanosis with hypertrophy represented by the *hard, red, "pig-backed" kidney* (the earlier and more active lesion); and *second*, a *hypertrophy with œdema* of the kidneys, represented by the *soft "pig-backed" kidney* (the more latent and less rapidly fatal lesion). The latter I met less frequently than the former, and believe it to be the later stage of the alcoholic kidney. Whether the lesion described eventually develops into Bright's disease, if the victim survives, I am unable to tell from my purely post-mortem observations.

I met with only twenty-five cases of established Bright's disease among two hundred and fifty cases of confirmed drunkards, from which it appears that Bright's disease is not more frequent in drunkards than in any other class of patients. Some of the foremost clinicians and authorities on kidney diseases (Bartels, Rosenstein, Tyson, etc.) are disinclined to give a prominent place to alcohol as a causative factor of Bright's disease, which appears to be in accord with the above observations.

That either form of the alcoholic renal cyanosis may be fatal in itself, without terminating in Bright's disease, I have satisfied myself, and hence I *believe that it deserves a place as a separate and independent kidney affection.*

The true mechanism of the *death* of drunkards from this alcoholic renal cyanosis is a matter of conjecture. If causes such as heart failure and œdema of the brain (which probably were the ultimate, immediate causes of death in some of my cases) are eliminated, a fatal uræmia is then the only plausible explanation. The empty urinary bladder in some cases, the high specific gravity of the urine, when found at all, post-mortem, in the bladder, and the histories which I had obtained in a few of the cases, favor such a view. In many cases of sudden death of drunkards it appears that death must have ensued under conditions similar to those of asphyxiation, because the blood in these cases was found dark and liquid throughout the system. A like condition of the blood, however, I have seen in certain other forms of poisoning, such as chloral, hydrocyanic acid, and carbolic acid. This subject requires further study.

But, while I have seen hundreds of drunkards dead of alcoholism, thousands of equally hard drinkers are at large and well. It appears that under favorable conditions the alcoholic renal cyanosis is capable of returning to the normal state of the kidneys, and that in its early stages it may be only a temporary lesion, paroxysmal, like the excessive drinking. Quite significant seems to me the experience of the drunkards themselves. One of them, a brewer, who had been a number of times prostrated from alcoholic excesses, and whom I treated about ten years ago for delirium tremens, told me that of late years he keeps himself well, because he stops drinking beer at once for a day as soon as he fails to urinate about every hour or two. I examined his urine lately and found no traces of renal disease.

E. Pathogenesis. The ordinary cyanotic induration of the kidneys, the result of long-continued permanent passive congestion of these organs, caused principally and directly by organic heart disease and indirectly by aortic and pulmonary affections, has been recognized as a separate kidney affection since the time of Traube. Tumors pressing upon the vena cava or upon the renal veins, or thrombosis of the latter also produce renal cyanosis. So I should think any causes interfering with the return of blood from the kidneys will produce renal cyanosis, even if the cause resides in the kidneys themselves. The kidneys are organs especially predisposed to congestion, on account of their close and direct vascular communications with the large abdominal blood channels, and the renal veins, as Tyson well puts it, "are without valves and are the first, therefore, to receive the brunt of stagnation."

The alcoholic or "pig-backed" kidney we have seen to be essentially a renal cyanosis also, only differing, as pointed out above, in some anatomical features from the known cardiac renal cyanosis. The essential etiological factor, however, is in both the same, namely, the chronic venous congestion. The question is only as to the mechanism of the production of the alcoholic cyanosis. In alcoholism we must look to the kidney substance itself for the cause of the obstruction to the renal circulation, because there is, as a rule, no cause for it outside of the kidney: no disease of the thoracic viscera and no thrombosis of the veins. Of the latter fact I have satisfied myself from the examination, in a number of cases, of the vena cava and the renal veins. Besides, in most of my rapidly fatal cases of alcoholic cyanosis I found the blood to be non-coagulable as stated before. It is possible that the large, fatty liver, which sometimes reaches an enormous size, may be held accountable for the pressure upon the large abdominal venous trunks; but I have often seen "pig-backed" kidneys in drunkards with but moderate hepatic enlargement.

I have heard Virchow say that "beer drinkers have *hypertrophied* kidneys." This view is also expressed by other pathologists, but no explanation is offered, nor have the anatomical peculiarities of the kidneys of drunkards been described. In relation to the pathogenesis of the alcoholic renal cyanosis the following explanation suggests itself:

It is well known that in persons who ingest great quantities of fluid, particularly alcoholic beverages in dilute form, the kidneys are strained to overwork. The quantity of urine normally passed by such persons is enormous so long as the kidneys act at all, and can at times be favorably compared with the quantity of urine passed in diabetes. It is evident that such overwork must invite a constant active (arterial) hyperæmia which of necessity produces a hypertrophy, due to a cloudy swelling of the epithelium and an overgrowth of all the structural constituents of the kidneys. A long continuance or a constant repetition of these conditions

leads eventually to a passive (venous) congestion, which persists or increases or subsides according to the repetition and the duration of the debauches of the drunkard. The renal circulation of the blood is retarded by the pressure of the swollen epithelium of the uriniferous tubules as exerted upon the vessels —a pressure which the thicker walls of the intertubular arteries and arterioles can resist more readily than the soft and thin walls of the corresponding veins. There appears to be also thrombosis of the stellate veins. The exit of blood is thus retarded while the arterial pressure continues unabated and keeps the kidneys constantly overfilled with blood. Eventually the kidneys are filled to their utmost capacity with blood overcharged with carbonic acid, and in consequence also with serum, which, leaking out of the obstructed veins into the renal lymph spaces, makes the kidney tissue œdematous; blood extravasates also, and adds to the firmness, redness, and roundness of the organ. Finally, the renal circulation comes to an entire standstill, coincident probably with a suppression of the urinary secretion.

This seems quite evident from the post-mortem appearances and from the swollen, cyanotic, and sometimes œdematous "pig-backed" kidney of drunkards, and is suggested also from the observation derived from the microscopicial examination of sections of these kidneys.

I will return to these studies in a future paper.

F. Statistical Remarks. Of the 250 cases of sudden death from alcoholism so far analyzed, 176 were men and 74 women. The hard, red form of the "pig-backed" kidney was found in men, principally in the younger and middle aged; while the softer œdematous form was more common in men of advanced age and in the women. The kidneys in which Bright's disease was coincident with the alcoholic lesion were mostly those of persons in advanced life.

The alcoholic renal lesion was nearly equally divided between persons of Anglo-Saxon and German descent, and, so far as I could perceive, equally between whiskey and beer and ale drinkers. I cannot speak about wine drinkers who in this country belong to the higher classes of society, and are seldom reached by the scapel of the pathologist.

It is interesting to note in connection with this point that the large, fatty liver (occasionally more or less indurated, but not contracted) which I met with indiscriminately in nine-tenths of all cases of death from alcoholism was equally distributed between all the denominations stated above, including imbibers of strong and of dilute alcoholic beverages.

The following order in the occurrence of the important and more frequent lesions may be roughly given from my autopsy records of 250 persons who died from alcoholism strictly:

The "pig-backed" or alcoholic kidneys	248 times.
Fatty, infiltrated, enlarged liver	220 "
Cystitis, acute and chronic	170 "
Mammillated stomach (or chronic thickening of walls)	150 "
Congestion and œdema of brain (meningeal and ventricular)	150 "
Simple cardiac hypertrophy	90 times.
Atheroma of vessels and valvular heart disease	50 "
Acute gastritis	50 "
Bright's disease (various forms)	25 "
Phthisis	20 "
Cerebral apoplexy	10 "
Cirrhosis of liver, with contraction below normal	6 "

I will make no comments upon the above figures in the present communication. The lesions of alcoholism other than the "*pig-backed*" kidney, I will consider on another occasion. Of great interest are the changes in the stomach, liver, and brain. Brief communications by myself upon some of the lesions of alcoholism may be found in the proceedings of the Philadelphia Pathological Society, 1885–86, when published.

The brains of confirmed drunkards should be studied by psychologists. The claim that chronic drunkenness is a form of insanity may perhaps be found to have some foundation.

G. The Medico-legal Aspect. A thorough knowledge and correct interpretation of the post-mortem appearances of alcoholism is perhaps to no end more important than when the life or welfare of a fellow-creature is at stake. There is a great deal to learn in this direction generally, and in no department of medical science are text-books more indefinite and "behind the times," and more rich in errors, than in the subject of medical jurisprudence.

I have myself once testified in court in an insurance case—and I know of other physicians who have done so—that "a certain person who had a large, fatty liver, to our best knowledge and belief was not likely to have been a hard drinker during life, chiefly because at the autopsy no cirrhosis of liver was found!" This was fully in accord with the teachings of our masters in medicine and with text-books. Yet, I am sorry to say, it is entirely wrong; and the jury decided against the insurance company on account of such erroneous medical testimony.

My experience has since taught me that cirrhosis with contraction of the liver is at least as rare an affection in drunkards as it is in "teetotalers," and that the traditional "hobnail" or "gin-drinker's" liver is not diagnostic at all, while the large, fatty liver is one of the most prominent signs of alcoholism. The facts are that in 250 drunkards I found the enlarged, fatty liver 220 times, and the contracted, cirrhotic liver but 6 times.

Often when a drunkard falls dead on any occasion, a cry of murder is raised, especially when bruises are found upon the body. It is here that a familiarity with the post-mortem appearances of *fatal* alcoholism is particularly necessary and nowhere can ignorance on the part of the examiner do more harm than here.

The constant occurrence of the "*pig-backed*" or *alcoholic* kidney in hard drinkers who perished from their drinking, and the rarity of kidneys of such character in those who are not confirmed drunkards, induced me to regard the kidneys as a valuable sign in post-mortem diagnosis; and next to the presence

of alcohol in the stomach, they are, together with the large, fatty liver, the most valuable proof that alcohol was operative or had contributed in producing death.

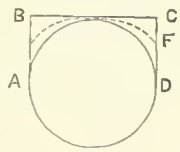
The "pig-backed" or alcoholic kidney, while a valuable diagnostic sign of the *effects* of the prolonged abuse of alcohol, may not show itself in persons who had been but moderately addicted to the use of alcohol, and in such case alcoholism should not be given as *the* cause of death.

REPORT OF TWO HUNDRED AND TWENTY-ONE CASES OF CATARACT EXTRACTION.[1]

By GEORGE STRAWBRIDGE, M.D., of Philadelphia.

Since the publication of my report of forty operations, which appeared in the *Philadelphia Medical Times* for February 19, 1876, I have performed two hundred and twenty-one operations, and all by the upward modified corneal flap method, which may be described as follows:

Incision.—Erect two perpendiculars, AB, CD (*vide* woodcut), tangents to the cornea at its horizontal diameter, join these above by a line tangent to the cornea at its upper border BC. Select two half-way points on these vertical lines as points of puncture,



and counter-puncture, with the centre of the incision a tangent to the upper corneal border. This will give an incision of about 11 mm. in extent, and in the corneal tissue, with the exception of the small scleral flaps at the points of puncture and counter-puncture, and the height of the flap CF being about 2.75 mm., makes this a compromise between the corneal flap and the Gräfe linear operation, and thus lessens the risks incident to either.

The iridectomy and opening of the lens capsule do not differ from the Gräfe operation, the lid speculum being often removed at the completion of the corneal incision, if the patient shows great anxiety, the lids being then kept open by the finger of the assistant.

The lens removal in many of these operations was accomplished by upward inward pressure with a Daniel spoon on the cornea at the puncture of the middle and lower thirds; but, latterly, I have preferred, after removal of the speculum, to exert a similar pressure by the index finger on the lower lid, thus avoiding rubbing of the corneal epithelium.

On completion of the operation, both eyes were closed by a compress and bandage, and the patient placed in bed.

[1] Read before the American Ophthalmological Society at New London, July, 1886.

After-treatment.—If the patient rests quietly without pain, the eye is not disturbed for twenty-four hours, at which time the compresses are changed. The eye is washed out (latterly with a two per cent. solution of boracic acid), a drop of a four grain solution of atropia sulphate is applied and bandages replaced. This proceeding is repeated once or twice a day as circumstances indicate.

My practice formerly was to insist upon perfect quiet, in a horizontal position, in a darkened room. Further experience would lead me to believe that this was a mistake, and at the present time I make it a rule that the patient shall be *absolutely comfortable*, change of position (with the nurse's aid) is freely allowed, the room in many cases is not even darkened (particularly has this been the case with hospital patients), except at the time of dressing the eye, and I am sure that this has been a great advantage to the health and good humor of both patient and nurse. As cataract operations generally concern the aged and infirm, I am careful to make the food as nutritious as possible. Whiskey and quinine are often given, and a large choice of food allowed.

During the past year, acting on the plan that the course of life of the aged should be changed as little as possible, I have frequently allowed the patient, with assistance, to sit up in bed twenty-four hours after the operation, and on the second day to be moved to a chair, and on the third day a gentle walk about the room is allowed. I am inclined to believe that any risk that may be run by this plan is much less than the debilitating effects of a recumbent position in bed, continued for a number of days.

In regard to antiseptic dressings, three-fourths of these cases had no such treatment; with the remainder, a two per cent. solution of boracic acid was used as a wash at the time of dressing of the eye. I cannot say that I place much importance on its use.

The use of cocaine as a local anæsthetic.—Method of application: drop one drop of a two per cent. solution of hydrochlorate of cocaine in the eye, wait one minute, then apply a second drop to the eye. This drug has been used in forty-eight cases, with great relief of pain to the patient. The first case in which it was used suffered, a few hours later, from a violent purulent inflammation, totally destroying the eyeball. This case occurred at Wills Hospital, and was quickly followed by two similar cases in the same hospital, which led to the belief at that time that the cocaine was acting as the exciting cause. Further experience has not confirmed this view, and, therefore, its use is continued.

Ether as a anæsthetic was used in four cases because of the impossibility of controlling the patient without its use. I am decidedly of the opinion that the depressing sequelæ of ether are detrimental to these cases.

Summary of Results.

Successes	85.2 per cent.
Partial successes	8.1 "
Failures	6.7 "
	100.

In	8	cases	V.	=	$\frac{20}{XX}$	In	5	cases	V.	=	$\frac{10}{LXX}$
"	14	"	V.	=	$\frac{20}{XXX}$	"	26	"	V.	=	$\frac{20}{C}$
"	41	"	V.	=	$\frac{20}{XL}$	"	14	"	V.	=	$\frac{20}{CC}$
"	20	"	V.	=	$\frac{20}{L}$	"	12	"	V.	=	$\frac{17}{CC}$
"	3	"	V.	=	$\frac{20}{LX}$	"	7	"	V.	=	$\frac{12}{CC}$
"	24	"	V.	=	$\frac{20}{LXX}$	"	5	"	V.	=	$\frac{8}{CC}$
"	4	"	V.	=	$\frac{18}{L}$	"	18	"	counts fingers from 3 to 5 feet.		
"	1	"	V.	=	$\frac{15}{L}$	"	3	"	V.	=	light perception.
"	1	"	V.	=	$\frac{15}{LX}$	"	12	"	V.	=	0
"	3	"	V.	=	$\frac{15}{LXX}$	221 total.					

MEDICAL PROGRESS.

THE DESTRUCTIVE ENERGY OF THE TINCTURE OF THE CHLORIDE OF IRON ON THE TEETH.—A paper with the above title was recently read before the New York Odontological Society, by GEORGE W. WELD, M.D., D.D.S.

It was shown conclusively that the tincture of the chloride of iron of the official strength had but little, if any effect upon the enamel structure of a tooth when immersed in the same for a period of twelve hours, but that when immersed in a solution of the tincture and water in proportion of one ounce of water to one drachm of the tincture, the enamel was materially injured in five minutes.

Two specimens of teeth which had been immersed in the tincture and alcohol were shown, and compared with teeth which had been immersed in the tincture and water. It was observed that although the alcoholic solution used contained the same quantity of the tincture and possessed apparently the same relative strength, and the teeth were immersed for the same length of time, yet no injurious effect was produced on the lime-salts of the teeth. This was attributed to the fact that alcohol is a dehydrating compound and that the peroxide which is formed in the alcoholic solution is of the anhydrous form, and in character very compact, adhering closely to the surface of the tooth, thereby preventing immediate chemical action; whilst, on the other hand, in the presence of water the peroxide which is precipitated is the hydrated form and flocculent in character, does not so well adhere to the surface of the tooth, leaving the free hydrochloric acid in the solution to unite the lime-salts with greater facility.

The teeth immersed in an ounce of the elixir of the pyrophosphate of iron with one drachm of the tincture of the chloride added for a period of twenty-four hours, produced apparently no chemical effect on the enamel; but with the same quantity of water and the tincture the enamel was completely destroyed. The elixirs are composed of nearly twenty-five per cent. of alcohol, the presence of which, as observed in the strong solution of the tincture, and in the alcoholic solution, affords a protection to the enamel of the teeth in the manner described. But it is to be noted that when a tooth is immersed in a solution of the tincture and simple syrup, in the above proportions, the enamel is but little affected. This is due to a mechanical reason or a condition of fluidity of the solution—*i. e.*, the presence of the sugar in solution coats the surface of the enamel, preventing the chemical affinity between the acid, or perchloride of iron, and the lime-salts in the teeth.

The manner in which syrup modifies the destructive energy of the tincture on the enamel was beautifully illustrated by the effect produced on the specimens of teeth which had been immersed in a weak solution of phosphoric acid, viz., "Horsford's acid phosphate," "Phos-acid," and "Phospho-muriate of quinine compound." The first two of these proprietary medicines are watery solutions, and their effect is to destroy the enamel of a tooth in an hour, whilst the last one, which is a syrupy solution (each fluid-drachm containing two grains of free phosphoric acid), produces but little, if any, injurious effect on the enamel in twenty-four hours.

When a drachm of the tincture is added to an ounce of Vichy-water, a slight effervescence occurs, indicating that the sodium bicarbonate contained in the water has neutralized a part of the free acid contained in the tincture; in consequence, when a tooth is immersed in such a solution, the destructive energy of the iron is to a great extent modified. Unless the specific nature of the tincture of the chloride of iron is materially affected (and the peculiar odor of the tincture remains) there seems to be no reason why this preparation of iron, at least in all cases of anæmia, should not be administered in combination with Vichy-water.

There are then three menstrua which may be employed to modify the destructive energy of the tincture of the chloride of iron on the enamel of the human teeth. The first is alcohol in some form; the second is Vichy-water, which neutralizes to a slight extent the free acid contained in the iron; and the third is some form of an elixir or simple syrup.—*American Journal of Dental Science*, August, 1886.

RHEUMATIC HYPERPYREXIA.—DR. H. BARNES, in a paper read before the Carlisle Medical Society, urges that in all cases of acute rheumatism, as soon as there is any indication of nervous symptoms, and particularly in patients of a high degree of nervous susceptibility, a careful watch should be kept on the temperature. Dangerous symptoms may be sudden in their onset, and medicinal treatment seems entirely to fail to arrest them. He recommends the application of cold when the temperature reaches 105°. The graduated bath is the method he most approves, commencing it at 90° and gradually reducing it to 70°. As soon as the temperature is sufficiently lowered, the treatment should be suspended and the patient placed in warm blankets, otherwise dangerous symptoms of collapse may supervene.—*Edinburgh Med. Journ.*, June, 1886.

BENZOATE OF SODIUM IN ERYSIPELAS.—HABERKON records a series of fifty cases of erysipelas in which the internal administration of sodium benzoate in the aggregate daily dose of four to five drachms was attended with admirable results. The drug is given in suspension in mucilage or in some effervescent water. Under its influence the febrile temperature diminishes and in twenty-four hours attains the normal. At the same time there is noted a diminution of the other symp-

toms. No external applications were used. In only two cases was an augmentation of the dose necessary. —*L'Union Médicale*, September 2, 1886.

Spartein.—Until very recently, investigations into the properties of the two principles, scoparin and spartein, contained in the broom, have thrown but little light on the therapeutic power of the drug itself. Scoparin has not been shown to possess physiological activity, though it has been regarded by some as a diuretic; and Fick's careful experiments with spartein (*Arch. f. Exp. Path. u Pharm.*, 1873, i.) led him to the conclusion that it acts chiefly on the nervous system. He found, indeed, that it influenced the heart, but concluded that its effects resemble those of atropine; and though increased urination was observed, it only took place shortly before the death of the animals experimented on.

Fronmüller ("Memorabilien," Heilbronn, 1878) attributed a diuretic action to spartein, but Rymond's conclusions from his researches in Vulpian's laboratory in 1880 ("Étude expérimentale de la spartéin et de son sulphate"), though not in complete accord with the results obtained by Fick, agree with them in specifying the nervous system, not the kidney or heart, as the special seat of the physiological activity of spartein.

In 1883, spartein was mentioned by Sée as a cardiac medicament, and last year (*Compt. Rend.*, Nov. 25, 1885), he brought forward a series of cases of cardiac disease, in which the administration of sulphate of spartein had quickly, and in an enduring manner, strengthened and steadied the heart's action. Laborde, about the same time, pointed out the predominant action of spartein on the heart of the lower animals, and now, in conjunction with Legris, he gives an account of its physiological action and clinical use.

In some of the lower animals, according to these observers, spartein causes increased reflex excitability of the spinal cord; in all it strengthens the systolic impulse of the heart.

If three-fifths of a grain be given subcutaneously to a rabbit the heart's beat is strengthened and slowed, and the effect is still more marked if the injection be repeated; frequent and abundant urination likewise ensues.

A dog of from sixteen to eighteen pounds weight is not injuriously affected by one and a half grains of sulphate of spartein. Three times this dose causes a tetaniform condition, with convulsions apparently spinal. Death takes place from paralysis of respiration, whilst the heart continues to beat regularly.

A small dose (one-seventh of a grain) is sufficient to strengthen the pulsation markedly in both large and small vessels.

In the frog, the heart's beat is greatly strengthened and quickened by spartein, and the organ continues to beat for an unusual time after death.

Laborde and Legris have not definitely determined the exact cause of the cardiac stimulation produced by spartein. They are inclined to think it is in part due to the action of the drug on the heart muscle, in part to centric nervous stimulation.

Sée, in his paper above alluded to, states that in man spartein strengthens the heart's beat and the pulse as powerfully as digitalis or convallamarin, and that its tonic action is even more durable. He says, too, that it regulates cardiac rhythm better than any other known drug; that it quickens the heart's action in grave atonic conditions; that it acts in an hour or more after its administration; that its effects last three or four days after its exhibition has ceased.

Laborde and Legris agree almost altogether with these statements; they only find the pulse increased in frequency when it is unduly slow, but they at times noted slowing when the heart's action was unduly quick. They find, however, that the effects of spartein usually appear in half an hour. Seven cases of cardiac disease are recorded in which spartein was taken with advantage, and tracings are given to illustrate its influence. In five of the cases no valvular lesion was diagnosticated, but either indications of asystolism or hypertrophy with palpitation. In two, mitral stenosis was present. In all, the heart's action markedly improved under spartein, in doses of one and a half to two and a quarter grains. They recommend that the drug should be given in doses of one and a half to three and three-quarter grains daily:

1. In cases where the heart is weak from tissue alteration, or unable to overcome obstacles in the circulation.
2. Where the pulse is irregular, intermittent, or arhythmic.

It has the advantage of acting quicker than digitalis, and it is not cumulative.

As a diuretic, they recommend spartein to be given in an infusion of the flowers of the broom. In cardiac dyspnœa, sulphate of spartein may be combined with iodide of potassium, and associated with inhalations of pyridine.

The contradiction between the results of Laborde and Legris, and those obtained by Fick, Rymond, and other observers, is so marked that further investigations into the subject are required, but the diuretic influence of broom is easily comprehensible if spartein has the cardiac influence attributed to it by recent French observers.—*Manchester Medical Chronicle*, September, 1886.

On Cases of Sudden Death Resulting from Venous Thrombosis and Embolism after Fractures of Bones.—Prof. P. Bruns, of Tübingen, gives one case of his own and a tabular synopsis of thirty-five extant cases. Analysis of these shows that the fractures occurred most frequently in the lower extremity, and in persons of from forty to sixty years of age. The immediate cause of thrombosis of the veins consists in compression or injury of the veins at the seat of fracture; and some predisposition is usually present on the part of the patient, such as varicosities or circulatory impairment. Embolism may occur at any time between the fourth and seventy-second day after the fracture, and death may result immediately, from asphyxia or syncope, or after a longer period of time from infarction of the lung, or, finally, recovery may take place.—*Annals of Surgery*, September, 1886.

Hydrofluoric Acid in Phthisis.—In the Medical Section of the Congress of the French Association for the Advancement of Science, session of August 14, 1886, M. Seiler described his method of administering inhalations of hydrofluoric acid in cases of phthisis. With the aid of a jeweller's bellows air is passed through a solution of the acid in three times its weight of water, the mixture being kept, of course, in a gutta-percha vessel. The air, thus impregnated with the acid, is introduced into the apartment of the patient in the ap-

proximate proportion of ten litres for each cubic metre of air in the room.

Seiler states that such treatment has been maintained daily during twenty to thirty successive days in sessions of an hour each, in a number of cases, that the inhalations are entirely innocuous, and that they often effect great amelioration of the disease.—*Le Progrès Médical*, August 28, 1886.

NITRITE OF AMYL IN OPIUM NARCOSIS.—*L'Union Médicale* reports a case of opium poisoning, in which the inhalations of nitrite of amyl brought on a rapid cure, when belladonna had failed, and the patient was almost beyond help.

TARTAR EMETIC IN LABOR.—In a paper on "Neglected Remedies," which appears in the *Medical Times* of September 18, 1886, DR. CALEB GREEN writes as follows: It seems not to be very generally known that tartar emetic is one of our most efficient agents in promoting parturition. When the pulse is tense, the os rigid, the skin dry and hot, the advance of the head slow, I have seen, by the use of small doses of antimony, the most prompt and happy change for the better. The pulse softens, the skin becomes moist, the rigid os relaxes, the vagina becomes bathed in a plentiful supply of mucus, and the uterine contractions hasten on to a speedy termination of the labor.

It is not a substitute for ergot, but it has properties which makes it much oftener available as a means of hastening labor to a happy termination. If the dose can be so graduated as to produce its effect as a parturient just short of nausea, and especially short of vomiting, the effect seems to be better than where vomiting occurs.

THE TREATMENT OF FEVER BY ELECTRICITY.—PROF. E. DE RENZI, having by chance observed a case of quartan fever cured by the application of electricity, instituted a series of experiments in this direction, and has formulated as a result of these observations, the following conclusions:

1. Fevers of malarial origin resist the action of the electrical current much more than do those symptomatic of bronchitis, pulmonary phthisis, etc.

2. During the application of electricity the temperature remains elevated, or even rises to a fraction of a degree; but soon after, at the most within an hour or two, a fall of several degrees occurs.

3. The best effect is obtained by holding a moist electrode in the hand while a metallic brush attached to the other pole is swept over the surface of the body.

4. Arterial pressure is increased during the application, the skin becomes reddened, and often moistened with perspiration, and the pulse is increased in force. It is probable, therefore, that the antipyretic effect of electricity is due to the increased activity of the cutaneous capillary circulation, whereby caloric is rapidly lost.—*New York Medical Monthly*, September, 1886.

OIL OF TURPENTINE IN THE DIGESTIVE DISORDERS OF INFANTS.—DR. BEDFORD BROWN writes as follows in the *Journal of the American Medical Association* for September 25, 1886.

In the therapeutic management of the more painful and grave affections of the alimentary canal of infants, and in those of a harmless character attended with suffering, I have for some years past been testing the virtues of the oil of turpentine as a curative agent. The use of turpentine in this class of affections has given me much satisfaction.

All infants are liable to transient attacks of painful colic, arising from temporary distention from accumulation of gas in the stomach, or from the presence of acids. But artificially fed infants more particularly are occasionally subject to a violent, protracted, and intensely painful form of gastralgia in which appetite and digestion are suspended, accompanied with rapid reduction of flesh and strength, sufficiently to endanger life. Vomiting may or may not be present. There may be slight diarrhœa or constipation. The affection is invariably attended with wasting of the tissues and suspension of development, anxious and contracted facies, but no fever except in advanced stages, when gastritis or duodenitis may be developed. Pain is the great and absorbing feature of the disease, which is a never-ending source of suffering to the little patient, and a source of perplexity to friends.

The disease may appear at a very early age. It does not appear to be associated with any organic lesion. It does not partake of the intermittent character of ordinary colic. But the pain is almost constant and unceasing, without relief from opiates. The abdominal walls are usually retracted. The shrill, penetrating cry of these little sufferers may often be heard, to the dismay and distress of all, pervading the entire house, day and night, except when under the influence of opium. On one occasion a feeble, emaciated, little infant was brought to my office, suffering with this affection, for treatment. Such were the shrill and distressing screams of the little creature, the wasted and piteous expression, that all transient callers were compelled to leave the room. The mother was robust and apparently in a vigorous state of health, and afforded an abundant supply of nourishment.

I think that in this case the child was suffering from an aggravated form of acidulous dyspepsia, with simple irritation of the gastric and duodenal mucous membranes. In two or three months this wretched little sufferer, under the turpentine treatment, combined with a few simple anodyne and alkaline remedies, was converted into a rosy, fat, merry, healthy infant. I have found the following formula a useful remedy in this class of cases:

R.—Mucilag. acac.	ʒiss.
Sodæ bicarb.	grs. x.
Chloroformi	gtt. x.
Ol. terebinth.	ʒss.—M.

Sig.—A teaspoonful every two or three hours to an infant of six months.

ANTISEPTIC VASELINE.—DR. P. MÉNIÈRE advises when uterine dilators, of either metal or vegetable material, are to be introduced that they be previously lubricated with the following mixture, which is not only antiseptic but favors dilatation.

Vaseline	ʒij.
Extract of belladonna	ʒj.
Bichloride of mercury	gr. ¾.

This pomade is best kept in long, narrow bottles, into which the instrument may be plunged before it is used.—*Gazette de Gynécologie*, September 1, 1886.

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CONTAGIOUS PLEURO-PNEUMONIA.

FOR the past two weeks the daily press has contained reports of the detection of pleuro-pneumonia in cattle at Chicago, and the statements of Dr. Salmon, the Government Veterinarian, leave no room for doubting the existence of the disease. We are not surprised to find realized in this way the worst fears of veterinarians and cattle breeders. It has been known for some years that the disease prevailed more or less extensively in New York, New Jersey, and Pennsylvania. The State and central governments have been repeatedly warned of the extreme danger of allowing this plague to exist, and half-hearted measures have been taken to eradicate it. Not a month has passed, however, without the intelligence of outbreaks, which plainly showed that the disease still lingered in our midst.

The limitation of the affection to the Eastern States, while gratefully recognized, was forcibly urged as the very best reason for its complete suppression. Once past the Alleghanies, where would it stop? Now the country is face to face with the most serious problem in animal pathology which it has had to encounter. The existence of the disease in Chicago—the great cattle centre of the West—threatens directly the herds on the ranches, and only extraordinary precautions can prevent their infection. The matter is one of grave public interest, as involving one of the great industries of the country, and should be dealt with by the central authorities at once. The spread of the disease in the Western herds means the loss, directly and indirectly, of many millions of dollars, and a damage to the cattle trade from which it would take years to recover.

To an American, nothing is more remarkable in Europe than the extreme anxiety displayed by the Governments in the investigating of every case of disease in cattle, the stringent quarantine of suspected localities, and the enforcement of sanitary regulations which we scarcely here think needful in our civil or municipal affairs. But they have bought their experience dearly enough, and it is the burnt child who dreads the fire. Our country has been remarkably free from devastating cattle plagues, and it is difficult to get people to realize the full danger until the mischief is irremediable. Those best acquainted with the condition of things have repeated their warning, but, too often, to deaf ears, and it really looks as if some great calamity, such as the cattle plague which overtook Great Britain in 1865, were needed to arouse public opinion to the point at which the question could be dealt with as its importance demands.

In the present crisis the indications are plain. The districts in which pleuro-pneumonia exists should be declared infected; a thorough examination should be made of all suspected animals; the immediate slaughtering and burning ordered of cattle found diseased; the isolation of cattle which have been in contact with diseased herds; and the systematic supervision of infected regions until such time as all danger of further trouble is over. To accomplish this the inspectors must be armed with arbitrary powers, and the Government must be prepared to spend large sums of money, but every thousand dollars now spent will mean one hundred thousand dollars saved, if pleuro-pneumonia can be kept out of the Western herds. There should be no trifling, and the action to be effective must be immediate. Only a few weeks ago, pleuro-pneumonia broke out in the cattle at quarantine at Quebec, where all animals coming from Europe are isolated for three months, on purpose to prevent the importation of this disease, the incubation of which may extend to ten or twelve weeks. Rather than risk the introduction of the disease, the Dominion authorities ordered the entire lot to be killed and burned, at a loss of over three hundred thousand dollars. Just such stringent measures are now called for at Chicago; nothing less than the destruction of the affected animals will give a reasonable prospect of checking now, and ultimately eradicating, the disease.

THE TREATMENT OF GRANULAR CONJUNCTIVITIS.

IN the treatment of granular conjunctivitis one of two objects is to be kept in view: either to subdue inflammation when this is already excessive; or, when it is deficient, to excite it to greater activity, so as to lead to the absorption of the morbid tissue which has been formed. For the latter purpose various chemical applications have been used, and even

inoculation with gonorrhœal pus; while attempts have also been made by scarification to lead to atrophy and absorption of the granulations.

One of the most recent methods proposed for the treatment of trachoma is that described by Dr. Cecchini Settimo, of Modena, in the *Gazetta degli Ospitali*, Nos. 100–103. 1885. It consists in destroying the granulations mechanically and chemically, by scraping and cauterization. All the cases Settimo has seen involved the upper lid, which he turns up, protects the eyeball with cotton soaked in a solution of boric acid or smeared with an inert ointment, and scrapes out with a Volkmann's spoon as many of the granulations as possible. He checks the hemorrhage with cotton dipped in cold water, and then practises a vigorous cauterization with pure nitrate of silver. Before doing this he pushes the lower lid against the reversed upper lid, and places between them a little cotton soaked in a solution of chloride of sodium, to protect the cornea. After the cauterization, the upper lid is well washed with the same solution, followed by a cold solution of boric acid. For the subsequent pain, he instils a solution of morphia and atropia, and applies light compresses, dipped in iced water. In some cases he applies a leech, or leeches, to the temple. The patient is ordered to keep the head elevated and the eye cool with applications of cold boiled rice, washing it out with boric acid solution.

The operation is contraindicated only when there is pronounced hyperæmia, in which case it is important to cure or to diminish this before scraping. Settimo prefers not to use an anæsthetic, as the contraction of the palpebral muscles helps the scraping process, although this is quite painful.

The operation may be done at one sitting if the granulations are soft and not very vascular, and the infiltration is not very great; but, if the granulations are hard and cartilaginous, it is advisable, but not necessary, to make the scraping in two or three sittings, at intervals of not less than three days. Chemosis is to be combated by taking blood from the temple, by incision of the external angle as in the method of Gräfe, and by deep incisions in the conjunctiva.

Settimo has used this method, combining it with the administration of iodide of potassium in twenty cases, with the most brilliant results, and naturally recommends it very warmly for general adoption.

More recently, Kramsztyk, in the *Gazeta Lekarski*, has called attention to a method of treating trachoma which was originally proposed by Wicherkiewicz, and which consists in crushing the granulations between the thumb-nails of the operator, or by means of a pair of forceps. The operation is very painful; and, although it has succeeded in a number of cases, it does not appear to have any advantages over the method of Settimo, especially if the granulations are very numerous.

Both of these methods are so heroic, that surgeons must be strongly convinced of their utility and of the necessity for having recourse to them before they are likely to be generally employed. Meanwhile, it is interesting to note, that Minor, in the *New York Medical Journal* for July 31, 1886, reports that he has had most excellent results with powdered boric acid dusted over the conjunctiva two or three times a day, or less frequently. The application causes pain lasting about thirty minutes, and a free serous discharge, which is soon followed by relief. The improvement in the conjunctiva and the clearing up of the cornea may not be very noticeable for a week, but after this time it will be apparent. Minor has found that boric acid ceases to be tolerated after three or four weeks, when some other drug must be substituted.

HYSTERICAL APOPLEXY.

At the meeting of the Société des Hôpitaux, August 13th, reported in the *Gazette Hebdomadaire*, No. 34, Debove communicated the facts of an extraordinary case of hysterical apoplexy in the male. The patient, a man aged thirty-one, formerly quartermaster in the marines, suddenly lost consciousness and remained insensible for twelve hours; but without convulsions and without involuntary evacuations. For two hours there was complete paralysis of the left side, which gradually disappeared, so that in the morning, on admission to the hospital, there was only an enfeeblement with hemianæsthesia. There was no history of any previous malady, and the patient was a vigorous man, but of an emotional temperament. The diagnosis of a hysterical condition was based on the character of the anæsthesia and its cure by suitable agents. The insensibility involved the skin, mucous membranes, muscles, and organs of sense of the left side. There was limitation of the field of vision, lack of preception of violet color, and monocular polyopia. The application of a magnet caused the return of sensibility in the left arm, and at the same time a disappearance of sensation in the corresponding right limb. It required several days' application of the magnet to restore completely the sensibility of the left side. The motor paralysis followed the anæsthesia in its transference from one side to the other, and disappeared with the restoration of sensibility. Only a hysterical condition could present such features, and be modified and cured by the application of magnets.

LUXATION OF THE ULNA IN COLLES'S FRACTURE.

It is now about fifteen years since Moore, of Rochester, called attention to the occurrence of dis-

location of the ulna and its separation from the triangular cartilage in Colles's fracture of the radius. He first observed these complications in the case of a woman, who, in a fit of mania, leaped from a third-story window, and broke her spinal column and both wrists. Four additional cases have been studied by him and have confirmed his convictions that, even when these fractures are the result of ordinary violence, they present the same features of a separation of the triangular ligament from the ulna, rupture of the lateral ligament, and tearing off of a portion of the styloid process of the ulna.

Moore's assertions have not so far secured the consideration they seem to deserve. Indeed, the credit of the discovery of the important relation of the dislocation of the ulna and fracture of the styloid process to Colles's fracture has lately been assigned to another investigator, Mr. Clement Lucas, whose observations were published in *Guy's Hospital Reports*, vol. xlii., for 1883 and 1884. These observations support the views so long ago expressed by Moore, although they differ from his in certain particulars.

There can be no doubt of the correctness of the statements of both Moore and Lucas. It is, moreover, certain that there is more or less displacement of the ulna from its connections at the wrist, with fracture of the styloid process, in many fractures at the lower end of the radius, in which these lesions are not discovered or even suspected. Moore estimates the frequency of these complications as about fifty per cent., and Lucas found them present in fifteen out of twenty-eight specimens in Queen's College Museum, which he subjected to a careful and critical examination.

THE NEGLECT OF VACCINATION.

We have noticed in the statistics of one of our large cities a recent marked falling-off in the number of operations performed by the public vaccinators, a fact which we fear portends evil in the near future. Although these data apply to a particular class, the smallness of the official returns of the past year or two, as compared with those of preceding years when smallpox was prevalent, may be taken as a fair index of a condition of the community in general, and is attributable to carelessness and neglect, so commonly observed during a season of immunity from the disease. When the incentive of fear is removed, people soon lapse into a condition of false security, and ignore the very measures which have procured for them a respite from epidemic visitation.

There are always in every community some people who reject vaccination under all circumstances. There are others who have their prejudices but are open to persuasion and conviction of their error. But the vast majority believe in the efficacy of the operation, though they are often negligent about its performance, especially after the abatement or disappearance of smallpox. The number of unprotected persons is thus constantly increasing during an interval of exemption from this disease, and is greatest before an outbreak occurs.

The remedy for this condition of things is compulsory vaccination; but so radical a measure is not received with favor. The alternatives are the imposition of disabilities and warnings and persuasion. In a period like the present, the importance of vaccination should be brought to the attention of the public in every possible way, and every facility should be afforded for gratuitous vaccination with thoroughly reliable virus. The public school boards should rigidly enforce the rule prohibiting unvaccinated children from participating in the advantages of free education. Physicians, as well as the local sanitary authorities, should be earnest in their endeavors to secure the widest possible results of this beneficent discovery.

Dr. Shakespeare returned to Philadelphia last week from Europe, after a year's absence, during which time he has been engaged as the representative of the United States in investigating, under the direction of the Secretary of State, the causes, progress, and proper prevention and cure of cholera. For this purpose he visited, and prosecuted his researches in, the cholera-infected districts of Spain, France, Italy, and in India. He is now engaged in preparing his report, which, we understand, will be forwarded by the President to Congress, and will be published as an official document.

Dr. Shakespeare's friends in the profession of Philadelphia gave him a reception on Wednesday evening at the Hotel Bellevue.

THE CHARLESTON MEDICAL COLLEGE.

We are in receipt from the Dean of the Charleston Medical College of the following statement of the extent of injury suffered by the college building:

"It is impossible to use any of the lecture rooms. $5000 would make the building tenantable for the purposes of lecturing. It will probably require between $8,000 and $10,000 to put the College in its former condition. The portico in front of the building is completely destroyed. The public inspectors of buildings have decided that the roof should come down, because it is badly supported by the upper portions of the wall. The annexed building used for dissecting purposes is also completely destroyed.

"The temporary repairs would, therefore, consist in strengthening the supports of the roof, in preventing leakage, removing cracked plastering, and building a dissecting room.

"We have secured for temporary use the old Marine Hospital building, which will have to be repaired at the expense of about $700. This will be done in time for the commencement of the lectures. The session will open as heretofore announced, on October 15th.

"To the above statement of the condition of the College it should be added that the institution has no mortgagable property, that is, has no funds, and, finally, that there is scarcely a probability of its participating in the general relief fund."

We have received for transmission the following contributions for the fund for the repair of the Charleston Medical College:

Philadelphia County Medical Society	$100.00
Lea Brothers & Co.	100.00
Dr. S. Weir Mitchell	100.00
Dr. J. M. DaCosta	25.00
Dr. Laurence Turnbull	10.00
Dr. Charles W. Dulles	5.00

SOCIETY PROCEEDINGS.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Eleventh Annual Meeting, held in the Hall of the Johns Hopkins University, Baltimore, Md., September 21, 22, and 23, 1886.

Tuesday, September 21.—First Day.

Morning Session.

The President, Dr. Thaddeus A. Reamy, of Cincinnati, called the Society to order.

Dr. H. P. C. Wilson, of Baltimore, delivered an

ADDRESS OF WELCOME.

In the name of the resident Fellows, of the general profession, and of the citizens of Baltimore, he extended to the Society a hearty welcome. "Were our hands as big as our hearts," he said, "we should kill you with kindness. Baltimore is ever ready and willing to welcome you whenever you are ready to come. I can assure you of the great interest which this community takes in the subjects of your deliberations."

Dr. H. P. C. Wilson then read the first paper; it was entitled

THE DIVISION OF THE CERVIX BACKWARD IN SOME FORMS OF ANTEFLEXION OF THE UTERUS WITH DYSMENORRHŒA AND STERILITY.

The operation, from want of a judicious selection of the cases, by being done by unskilled hands in proper cases, by being done in unsuitable cases, and from want of appropriate after-treatment, has been barren of good results in certain hands and followed by bad results in other hands. This operation has been substituted by the use of stems, sponge tents, and dilators, but the speaker had found no measure so safe and efficient in the classes of cases to which he shall call attention as the knife. The classes in which he would recommend the operation are:

First, those of anteflexion of the uterus, with a hard, indurated cervix, where the body is bent upon the neck, or the neck upon the body, forming a more or less acute angle.

Second, those cases of acute flexion where the cervix is hyperplastic and indurated and dense as cartilage.

Third, those cases where there is a hard, unyielding, internal os, through which the probe passes with difficulty, and in its passage gives the sensation of passing over rough, dense cartilage, while the finger in the sulcus between the body and the neck in front gives the feeling of a strong cord tied around the uterus. The third class is frequently combined with the first, and often with the second. In a typical case calling for the knife, all these lesions coexist. Nearly all these cases are sterile. In all of them the Nabothian and utricular glands are hypertrophied and indurated.

The different methods of operating were then reviewed. If the patient escapes the secondary results which are liable to follow the use of tents, they are the most efficient means of overcoming the difficulty, next to the use of the knife. The forcible dilatation does not restore the anteflexed uterus. For the purpose of rectifying the difficulty, the knife is the surest means in the cases which have been referred to. Where the posterior lip of the cervix is divided, and the internal os is divided anteriorly and posteriorly, the circular muscular fibres are paralyzed and the longitudinal fibres contract and tend to rectify the position.

The method of operation was then described. With the patient under an anæsthetic, the uterus is drawn downward by a tenaculum in the anterior lip; the posterior lip is then divided with scissors up to the vaginal junction. An uterotome is next passed, and the internal os divided anteriorly and posteriorly to an extent sufficient to permit the introduction of a large sound. The parts are allowed to bleed freely. A pledget of cotton soaked in a mixture of Monsel's solution, iodine, and glycerine, is then introduced into the cervix and over this pledgets treated with Monsel's solution and water and the vagina lightly tamponed. These are not removed until the third day. All manipulation of the uterus is avoided for at least two weeks. A sound is then carefully passed, and every second day the os is gently stretched with a steel dilator. The patient is allowed fully to recover from the operation, which usually requires one month. Local treatment is then suspended for one month, to allow the intrauterine mucous membrane to improve. The patient then returns, and applications of Churchill's tincture of iodine are made to the endometrium two or three times a week. The treatment, after the lapse of a month, is again suspended, to be resumed in the course of one or two months. If this after treatment is not carefully and properly carried out, the operation had better not be done. The speaker had performed the operation 400 times, and had never obtained as good results from any other method. In no case has he had a death which could be attributed directly to the operation. If the patient is not disturbed by meddlesome after-treatment for ten days subsequent to the operation, there is not much danger of inflammatory troubles. There are some cases of dysmenorrhœa and sterility where this operation is entirely unsuited. It was recommended only in the cases described in the beginning of the paper. Several illustrative cases showing the good

effects of the operation in overcoming dysmenorrhœa and sterility were related.

Dr. T. A. Emmet, of New York, said that he would have been willing, some years ago, to endorse all that had been said by the speaker. He thought that he had done as much harm as any one by this operation. We must separate dysmenorrhœa and sterility as being due to widely different causes. Mechanical dysmenorrhœa he considered a myth. We must also separate two conditions of flexion, one a flexure of the neck, a congenital defect, and the other a flexure of the body of the uterus, due to preceding inflammation outside of the uterus. Sterility resulting from this latter cause is not relieved by the operation, and its performance is attended with great risk to life. The congenital flexion is the only one in which he operates to relieve the sterility. There are a few cases of the inflammatory form of flexion where the operation benefits the reflex symptoms by its revulsive action. Where he has done the operation he has drawn the vaginal mucous membrane to the bottom of the wound and secured it with stitches. This does away with the necessity for plugging and the fear of hemorrhage. This operative procedure is not free from danger. He was aware of at least twenty deaths from it. If, as has been suggested by Dr. Wilson, all the effects of previous inflammation are removed, there is not the same danger, but he could not see that the operation will do any good.

Dr. James R. Chadwick, of Boston, remarked that he had not been successful with this operation in curing sterility or dysmenorrhœa. He considered flexion as always congenital, the result of the persistence of the infantile shape of the uterus. This, he was convinced, is not confined to the anatomy of the organ, but also involves its function. The defect probably extends to other portions of the genital tract. The only cases in which he had had any results from operation had been where there was flexion with a small external os. In a certain proportion of these cases, impregnation had followed the operation. He held that the operation should be restricted to those cases in which there is flexion with a small external os, but in which the uterus seems to be well developed in other respects.

Dr. W. H. Baker, of Boston, said that while the immediate results were very gratifying, in many cases they were not permanent. The question arises, If this operation, which was performed so frequently, was successful, would it not have lasted? It was found that in many cases less severe measures would give equally good results. This has led to a clearer discrimination of the cases. Of late years he had limited the operation to the class of cases in which there is a congenital malformation and those in which there was seen an inflammatory condition, the results of which had been removed. The good results which Dr. Wilson reports must be explained by the great care in the after-treatment which he practises.

Dr. Fordyce Barker, of New York, stated that some thirty years ago he had seen Simpson perform this operation a number of times. He performed it in his office, and did not seem to apprehend any danger from hemorrhage. He employed the operation in a few cases, but he soon gave it up. The only cases in which he employed it was where the narrowing was at the os externum.

Dr. J. Scott, of California, had practised the operation. But while the immediate results have been good, he had been disappointed in the ultimate results. He had gradually come to limit the operation to the cases described by previous speakers. After the operation, the patient should be confined to bed at perfect rest, and hot water injections be employed every two hours.

Dr. W. T. Howard, of Baltimore, remarked that he had given all the operations alluded to a fair and full trial. His experience has not shown him that any particular operation is the one for all cases. By the anteroposterior incision he had had some excellent results. With the precautions adopted in operating in other portions of the body an incision of this kind in the majority of cases should not be dangerous. Dr. Mundé, in a paper on this subject, reports over one thousand cases, with only nine deaths. He thinks, however, that forcible divulsion is attended with as much risk as incision. In his practice the method adopted has varied according to the case. In some he had employed the posterior incision, in others the bilateral incision; but in the majority of cases he dilates, using antiseptic precautions. He had never taken less than twenty to thirty minutes to complete the operation.

Dr. H. P. C. Wilson said that he had not heard any thing in the discussion to convince him that in properly selected cases division of the cervix is not the best thing to do. As he had already said, if the operation is not followed by proper after-treatment, it had better not be done. The danger is not from the operation itself, but from the improper after-treatment.

Dr. R. Stansbury Sutton, of Pittsburg, then read a paper on

Another Modification of Emmet's Cervix Operation, with a Case in Point.

A case of old-standing neglected double laceration of the cervix was reported. The cervix was composed of dense, hard, hyperplastic tissue, almost cartilaginous in character. An operation by the ordinary method was out of the question, for the sutures would not have held. In order to remove the greatest amount of cicatricial tissue and overcome the condition, the following procedure was resorted to: the lower lip of the laceration was denuded of its altered mucous membrane, leaving only a narrow strip corresponding to one-half of the strip usually left to serve for the future os; the upper lip was treated in the same way, leaving the opposite half of the strip of mucous membrane. When the flaps were brought together, the strips of mucous membrane lay side by side, with the undenuded surface of one flap in apposition with the denuded surface of the opposite flap. In this way union in the position of the future canal was prevented. Good union followed the operation and at the end of three weeks a Simpson sound was passed without difficulty. This operation may be of service in certain cases where the usual operation cannot be performed.

Dr. Emmet considered the modification to be an ingenious one, but its value can only be determined by future trial. In such cases, however, where there has been such cystic degeneration, it is often better surgery to amputate a portion of the cervix, so as to get into healthy tissue. In a certain number of cases, he had always performed amputation. He objected to ampu-

tation in so-called elongated cervix. If we remove the tissue to a depth below the follicles, the remaining dense tissue will gradually soften.

Dr. George J. Englemann, of St. Louis, said that he had found no difficulty in preventing union, and had paid very little attention to the strip of mucous membrane. In such cases as had been described, he had cut away nearly all the mucous membrane and inserted a short piece of fine catgut. This maintains as large an opening as is necessary. When, however, we come to such extreme cases, it is better not to attempt what has been termed Emmet's operation, but to resort to partial amputation, as is performed in Germany.

Dr. W. H. Baker held that if we can restore the healthy character of the strip of mucous membrane and retain it, that is the best surgery. In this class of cases he had removed a transverse wedge-shaped portion of each lip of the cervix and then brought the parts together. In this way the hyperplastic tissue preventing the apposition of the surfaces is removed. If proper preparatory treatment is employed, the saving of the strip of mucous membrane can usually be accomplished.

Dr. R. Stansbury Sutton, in closing the discussion, said that in the case described there was one of two things to be done, either to remove the cervix or devise some new method of operating. This modification gave complete satisfaction in this case and he purposed trying it in other similar cases.

Dr. Elwood Wilson, of Philadelphia, forwarded some

NOTES ON THE TREATMENT OF RECENT LACERATION OF THE CERVIX UTERI.

Occasionally a tear of the cervix can be recognized, he said, immediately after labor, but sometimes this can not be done. The patient should always be examined ten or twelve days later. If laceration be found immediately after labor, injections of corrosive sublimate solutions, one to five thousand, with the insertion of an iodoform suppository, should be resorted to. The vagina should be irrigated every other day and the suppository renewed. When the laceration is found within three weeks after delivery, the following treatment should be employed: After the surface has been carefully cleansed and dried, it should be painted with a solution of nitrate of silver, one drachm to the ounce of distilled water. From three to five applications at intervals of five days are usually required. In every case in which the author had tried this measure (six in number), the result was entirely satisfactory.

Dr. Fordyce Barker, of New York, thought that the practice recommended in the paper is better worthy of trial. It is much preferable to the *rôle* laid down within the past few years, that if there is a laceration it should be closed immediately after labor. If this method will effect union it should be tried.

Dr. Thomas A. Emmet supposed that a certain amount of laceration occurs in every labor, but it is wonderful what nature will do to restore the cervix where septic poisoning is not present. It seemed to him that in all cases where under favorable circumstances nature has failed to repair the damage, there have been symptoms indicating septic inflammation. In the cases reported, he believed that the same results would have been obtained even if nitrate of silver had not been employed.

Dr. J. Scott, of San Francisco, said that in only one case had he attempted to sew up the cervix shortly after labor. In this case there was an extensive tear of the cervix and of the perineum. There was considerable bleeding, and five hours after labor he thought it advisable to sew up the cervix. The tissues were so soft that it was with the greatest difficulty that he could get the sutures to hold. Union took place, however, both in the cervix and in the peritoneum.

Afternoon Session.

Dr. Thomas Addis Emmet read a paper on

PELVIC INFLAMMATIONS: CELLULITIS *vs.* PERITONITIS.

In this country the term cellulitis has come to signify pelvic inflammation without reference to the special form, but its origin is supposed to have been in the connective tissue. So close is the relation between the connective tissue and the peritoneum, that it seems impossible for inflammation to be present in one without affecting the other. There are situations, however, as between the uterus and bladder, and between the uterus and rectum, where cellulitis might exist without involving the peritoneum. Inflammation in these situations tends to resolution, and so the tissues soon regain their healthy condition if suppuration does not take place. After septic poisoning, the peritoneum rapidly becomes inflamed and adhesions occur, the circulation in the bloodvessels becomes more or less obstructed, and the action of the absorbents is greatly impeded. Finally, a condition is produced which remains long after the symptoms have subsided, and one not prone to change or amenable to treatment. In such cases a fresh attack is provoked by slight causes.

It has been objected that when the abdominal cavity is opened for the removal of the ovaries, very slight evidences of inflammation are found. In a recent case the speaker had expressed the opinion from the vaginal examination, that a thickened and shortened left broad ligament would be found; at the operation no broad ligament was found, but there was an enlarged tube lying against the side of the vagina. Similar cases have been noted. He would explain these cases in this way: If there is an inflammation between the folds of the broad ligament, it must involve the peritoneum. As a result of the inflammation, the connective tissue disappears and adhesion of the opposing surfaces takes place. The broad ligament is flattened out so that Douglas's cul-de-sac disappears on that side. The vaginal wall is raised up so that it and the tube lie in contact. This is the condition found by the surgeon when he operates for the removal of the diseased Fallopian tubes. In all these cases he felt satisfied that there has been inflammation of the connective tissue. He thinks that the inflammation has been secondary to the cellulitis in every instance except where the primary inflammation was the result of gonorrhœa. If his observations are correct they would prove that the connective tissue never regains its integrity after having been once inflamed. If the surrounding tissue has restored the loss the part will return to its normal condition. If the loss cannot be replaced, nature can only repair the injury by a process of adhesive inflammation of the parts involved.

He had used the term thickening of the broad ligament, but he had not meant to imply that there is a deposit of lymph between the layers of the broad ligament. The enlargement is, he thinks, due to the dilated state of the veins. The condition is one easily aroused to activity.

It is still a moot question as to the way in which the tube has become involved where gonorrhœa is not the cause of the inflammation. In septic poisoning after surgical injuries, he believes that the connective tissue of the veins and lymphatics first become involved and that the inflammation of the peritoneum is secondary. There is no evidence to prove that the inflammation passes into the uterine canal and thence to the tubes, except in such cases where the process is due to gonorrhœa.

The prognosis as to the result to be gained by local treatment is doubtful in those cases due to gonorrhœa, in those cases where the pelvic inflammation is of long standing without reference to the cause, and in those with a history of frequently recurring attacks. In cases which can secure every attention, a cure by local treatment can sometimes be effected, but a long time is required. In patients who have to gain their own living, we may seriously consider the advisability of an operation after having gained the consent of the patient after a true representation of the operation and its results. We should enter a protest, and the profession should demand a recognition of the responsibility of those who are immediately operating for the removal of tubes and ovaries. It requires an expert to determine when the operation is necessary, and still more experience and skill to do it with safety to the patient. It should only be done as a last resort after other measures have failed. In a number of cases, in private practice, he had succeeded in restoring the patient to health by local treatment, although the operation had been strongly urged. If we could get accurate statistics, he thinks that it would be shown that the average amount of benefit gained does not compensate for the amount of risk. He believes that the operation is done too often even by those who have the least death-rate. He predicted that five years will not pass before it will be almost necessary to offer an apology when this operation is proposed.

Dr. Robert Battey, of Georgia, said that from his experience it has seemed to him that the pelvic cellulitis which gives so much trouble was, in a large proportion of these cases, secondary. So far as disease affecting the tubes is concerned, he believes that if we throw out of consideration the gonorrhœal cases, the primary disease starts in the ovary. He regards most of these serious inflammations of the pelvic cellular tissue as dependent upon cystic or cirrhotic disease of the ovary. With reference to the frequency with which this operation is done, he said that he was largely in sympathy with the speaker. He thinks that the operation is done too often. He does not believe that every case of organic disease of the ovary requires operation.

In reply to a question of Dr. Fordyce Barker asking him to state the grounds on which he would advise removal of the tubes and ovaries, he said that every case must be determined for itself. If he had a poor, miserable patient, without the means of comfortable subsistence, suffering with ovarian or tubular disease, he would operate. If he could put such a patient under suitable surroundings, and under a prolonged course of treatment, he might not think of the knife, but we have to look at the cases as they exist. He does not require in his cases an absolute diagnosis of disease of the tubes or ovaries prior to operation. It is sufficient for him to know that the general health is broken down by reason of the perverted function of her ovaries, that she is utterly miserable, that there is no reasonable hope of restoration to health by other means, and that there is a reasonable prospect of restoration by the removal of the ovaries. Under such circumstances he unhesitatingly operates, and, contrary to his former views, he finds that the ovaries are diseased.

Dr. R. Stansbury Sutton, of Pittsburg, believed that when the ovary is diseased, and cannot be cured by ordinary means, when it is interfering with the health of the woman and her duties in life, it should be removed. If the ovary is diseased, and is a burden to the woman, it is as much the duty of the surgeon to remove that ovary as it is to remove a diseased eyeball. He agreed that the operation is being done too often, not, however, by competent men, but by incompetent men. The conditions which require the operation are not always clearly understood before the abdomen is opened. He did not believe that a man is compelled to be positively certain of what he is going to find before operating. The speaker then presented several specimens, and described the cases from which they were removed.

Dr. Busey, of Washington, thought that if pathologists will return to the histological basis, there will not be the difference of opinion which now exists. He believed that it is now held that the cellular tissue is really a vast lymphatic structure, and that the peritoneum is a large lymphatic sac. Instead of discussing nice distinctions between pelvic cellulitis and pelvic peritonitis, it would be better to classify as pelvic lymphangitis these different varieties.

Dr. J. Scott, of San Francisco, mentioned some of the cases bearing upon this point which he had seen. One was a patient supposed to have fibroid tumors. The abdomen was opened, and both ovaries found to contain pus. They were removed, and the patient recovered. In the second case the patient presented a tumor in the right side. The temperature record was kept for two months, during which time it did not vary half a degree. On opening the abdomen the ovary was found to contain ten ounces of pus. The right ovary was removed, but the left appeared to be healthy, and was left in position. During the operation the bladder was opened. This was sutured, and the patient made a good recovery. Five weeks later the patient complained of pain in the left side, and on examination he found an enlarged left ovary. This was removed, and the patient promptly recovered. In a somewhat similar case, one ovary was removed. In a short time the other enlarged, but the operation was postponed, and the woman died of rupture of the abscess.

Dr. Matthew D. Mann, of Buffalo, alluded to the possibility of one tube and ovary being diseased without involvement of the other. There is no reason why it should be so. He had, in several cases where the disease appeared to be limited to one side, removed but one ovary, and the result has been a perfect cure. This operation avoids some of the objections urged against the removal of both ovaries.

Dr. H. P. C. Wilson, of Baltimore, believed that where there is a general cellulitis there is more or less pelvic peritonitis. These two affections are often associated. In the early stages the inflammation is often controlled by active treatment. If it is not controlled, it may go on to the formation of abscess. The pus may be discharged and the patient recover. Occasionally the abscess occurs in the tube or ovary, and these are the cases in which laparotomy is often called for. He agreed that the operation is done too frequently. The point which Dr. Mann had raised, that it is not always necessary to remove both ovaries, is a very important one.

Dr. John C. Reeve, of Dayton, Ohio, reported

A CASE OF ABDOMINAL SECTION FOR CHRONIC SUPPURATIVE PERITONITIS.

A., aged nineteen, living as if married, was healthy until November last. She had never been pregnant. She was attended by a physician, who found abdominal inflammation. On January 18th, she was seen in consultation by the speaker, at which time she presented the evidences of chronic peritonitis, but no history of a gonorrhœal origin could be obtained. One month later she began to pass pus by the rectum. After other measures of relief had failed, laparotomy was offered in April, but declined. The patient was not again seen until June 20th, when she desired the operation. She had suffered with hectic, the menstruation had ceased since January, and examination of the urine showed no albumen. There was great tenderness and hardness all over the abdomen, pus being still passed with the stools. By vaginal examination no definite hardness could be detected. By the rectum there was ill-defined resonance high up on the left side. No opening into the rectum could be detected, although frequent examinations for this purpose were made. The patient was greatly emaciated, the weight having fallen from 125 to 70 pounds.

The operation was performed June 23d; there was great difficulty in the administration of the ether. On opening the peritoneum, all the parts were matted together. The abdomen was washed out by allowing water to run into it from a pipe, and then syringing out what remained. Finally a cavity was reached in the left lumbar region. It was impossible to attach the walls of this cavity to the abdominal wound, and as the condition of the patient was by this time alarming, a drainage tube was introduced and the abdominal incision closed with sutures. In the course of several hours, the patient gradually rallied from the operation. The temperature did not go above 100°. The cavity was washed out with a solution of iodine in tincture in water. The upper two-thirds of the abdominal wound failed to unite. On the fourteenth day a large quantity of fecal matter came through the wound. This has continued to recur. In July, evidences of Bright's disease were detected; since then there has been some improvement in the general health. He thought that if the patient had consented to the operation when first proposed, the result might have been different. One of the principal objects of the paper has been to ascertain whether, as has been stated, fecal fistula is an invariable consequence of laparotomy for abdominal inflammation in cases where pus has already escaped by the rectum.

Dr. J. Scott mentioned the following case. A patient was admitted to the hospital with prolapse, inflammation of the ovaries, and cellulitis. After three months' treatment without improvement, removal of the ovaries was recommended, but declined by the patient. The patient was kept under treatment for six months longer, when enlargement of the right ovary began. Later, pus discharged by the rectum, and subsequently the abscess opened into the bladder. The patient then consented to operation. The abdomen was opened, an opening made into the vagina, and a drainage tube introduced. The improvement was not marked, and in the course of two months the patient was as bad as ever. The removal of both ovaries and tubes was then performed. Four or five days after the operation, feces appeared in the wound. During the five months succeeding the operation, the fecal fistula has closed, the patient has gained ten pounds, and is able to walk about.

Dr. William Goodell, of Philadelphia, said that the only case which he had had at all similar to the one reported, was one of pelvic abscess opening into the rectum and bladder. He performed laparotomy with the intention of opening the abscess and stitching its walls to the abdominal wound. The abscess had been so constantly drained, that it was not larger than a pear. By compressing the abscess sac, he was able to make it prominent in the vagina, and force into it a closed pair of scissors, which were then opened, and the opening gradually enlarged and a drainage tube inserted. This case gradually recovered, both the rectal and vesical openings closing in the course of time.

Dr. C. C. Lee, of New York, thought that the rule will come to be established that in chronic suppurative peritonitis, laparotomy is not only justified, but the procedure to be adopted.

Dr. R. S. Sutton said that in a case of pelvic abscess as large as a cocoanut, he performed laparotomy, and then stitched the peritoneum at the edge of the incision to the peritoneum covering the abscess, which was then opened and a drainage tube introduced. The patient recovered.

Dr. Joseph T. Johnston, of Washington, suggested that in such cases as the one described by the author, in which time is a matter of importance, much can be gained by adopting the procedure employed by Drs. Bantock and Tait. In washing out the abdominal cavity they pour the water into the cavity with a pitcher, using gallons at a time. In this way the cleansing is rapidly accomplished.

Wednesday, September 22d.—Second Day.

Morning Session.

Dr. John Goodman, of Louisville, Ky., read a paper on

ERGOT AFTER LABOR.

The administration of a full dose of ergot immediately after the completion of labor has become a general practice. It is claimed that it promotes involution, prevents after-pains, and tends to prevent post-partum hemorrhage. Some years ago, the author administered a full dose of ergot after a perfectly normal labor. In fifteen minutes, severe pain appeared and increased. The tenderness in the uterus continued for a week.

There was no milk, and the patient, previously prolific, never again conceived. The trouble was attributed to inflammation of the muscular coat of the uterus, produced by the action of the ergot.

In a second case, treated in May, 1886, ergot was given after a forceps delivery. On the seventh day the patient had a chill, followed by a temperature of 104°. The next day a clot was washed out of the uterus, and the temperature fell to 99°. Well-marked septicæmia developed, and the patient died one week later. In this case the retention of the clot was attributed to the spasmodic contraction of the uterus preventing its escape. The author had seen other cases in which injurious effects were produced by the administration of ergot.

He claimed that ergot did not assist involution, which is a natural process, and requires a certain length of time for its completion. That we have in ergot a remedy capable of arresting after-pains, cannot be doubted, but it does so by exciting a mode of muscular action at variance with all physiological laws. After-pains are conservative, and it is better to wait until they become of abnormal severity before resorting to treatment. Ergot is capable of preventing hemorrhage, but its use is attended with such dangers that it should be employed only under exceptional circumstances. It should be an inviolable rule not to give ergot at the close of the third stage of labor, unless hemorrhage is imminent. It should then be used by hypodermatic injection.

Dr. Reamy had in process of preparation a paper in which he enters his protest against the routine practice of the administration of ergot after the third stage of labor. This conclusion is based upon his experience, and upon a study of the action which is claimed for the drug. The contractions produced by ergot are unlike those of nature. The contraction of ergot is persistent, while the normal contraction is intermittent. If the contraction is persistent, the circulation of the uterine wall cannot reach a healthy state, and thus the process not only retains what is in the uterine cavity, but it interferes with the process of involution, and lays the foundation for sepsis and inflammation. He thinks that in the course of the next five or ten years, the practice of obstetricians in this matter will be revolutionized.

Dr. William Goodell said that the author of the paper stated that it is only since last May that he has given up the use of ergot. He thinks that he has not had sufficient time to form such positive opinions. In the first case, he thinks that there must have been a fibroid tumor. The second case was a clear instance of septicæmia. He does not think that after-pains are conservative. As a rule, we do not see them in the primipara. These pains are, in great measure, the result of weaknesses induced by civilization. He does not believe that every woman who has given birth to a child needs ergot, but we do not know the cases which do require it. In twenty-five hundred cases of labor he has always given ergot after the completion of labor and he has never seen any harm from its use. He does not believe that one dose of ergot has much effect in favoring involution. Involution is the result of fatty degeneration, and the greater the contraction the greater the interference with circulation and the more rapidly should this change take place. He has used ergot for two purposes, one was to prevent hemorrhage and the other to prevent the absorption of septic matter. Since the introduction of antiseptics, which he thinks should be used in every case of labor whether public or private, the use of ergot to prevent septic infection is not so important. He thinks that it does not do the harm which has been mentioned.

Dr. George J. Englemann, of St. Louis, held in the main the views which the President had expressed. He used ergot much less than he did a few years ago. He believed that we have equally effective measures in the hot antiseptic douche and in the faradic current. After the contents of the uterus have been expelled ergot will in certain cases always be a useful and effective remedy. He would not venture to say that after labor ergot is out of place, but he thinks that he might say that before the contents of the uterus are expelled it should not be used at all.

Dr. Theophilus Parvin, of Philadelphia, believed that the effect of ergot varies with the dose. A small dose acts simply to increase the normal uterine contractions. He objected to the assertion that ergot should never be given before the completion of labor. Statistics show that those who are most successful in the treatment of placenta prævia are the men who use ergot. Again, in a multipara with the os dilated, where a sudden rupture of the membranes has taken place, with a cessation of labor, fifteen or twenty grains of ergot cause a rapid completion of the labor. After a protracted labor there is a weariness of the uterus and a failure to enter upon the normal retraction which is a preventive of hemorrhage and tends to promote involution, As long as in the third stage of labor we assist nature in the expulsion of the placenta, why should we not assist nature in securing normal retraction of the uterus after the completion of the third stage? In some experiments which he made at the Philadelphia Hospital, to determine the rapidity of involution of the uterus in women who had received ergot and in those who had not, it was found that in those who received ergot after delivery, uterine involution seemed to take place more rapidly.

Dr. Skene, of Brooklyn, had never seen such effects from ergot as have been described in the paper. He did not think that in the cases reported the ergot had anything to do with the production of the effects. All rational men use ergot as any other remedy, when it is necessary or may possibly become necessary; if there is any doubt whether or not it is needed, it is better to give the patient the benefit of the doubt.

Dr. P. C. Williams, of Baltimore, believed that ergot has its place in obstetrical medicine. He had never yet regretted its use in any case, but had regretted not using it. The great danger under the use of anæsthetics is hemorrhage. To avoid this the use of ergot seems to be the proper thing. He admitted that ergot is abused, but the abuse of ergot is no argument against its proper use.

Dr. Reamy, in concluding, said that the profession is not taught that ergot should be given in diseased conditions, but that it shall be given in all cases after labor as a routine practice, and it is only against this use of it that he raised his voice.

Dr. Reamy then delivered

THE PRESIDENT'S ADDRESS,

(See page 365.)

DR. FORDYCE BARKER, of New York, read a paper on

THE INFLUENCE OF MENTAL IMPRESSIONS ON THE FŒTUS.

The belief that maternal impressions may affect the nutrition and development of the fœtus *in utero* has existed from the earliest periods of which there are any records. Medical writers, with hardly an exception down to the beginning of the eighteenth century, express the belief, with more or less distinctness, that fœtal marks and deformities are due to the emotions, desires, or shocks of the pregnant mother. Reference was then made to numerous papers written within the past twenty years, in which this theory was strongly controverted. Those who disbelieve in this doctrine, base their scepticism on what they regard as physiological reasoning, and chiefly on the assertion that there is no direct nerve connection between the maternal and fœtal systems. Deformities, they urge, are due to arrest of development. But no one has brought forward sound physiological reasons why this arrest of development may not have been caused by mental impressions affecting the fœtal nutrition by their influence on the maternal blood. Extremely rare as is the occurrence of cases which prove the result of this influence, he considered the fact to be so well proved by sufficient authentic evidence as to make it as certain as any other fact which cannot be explained by science. The term "mental impressions" should include those which have a physical as well as a psychical origin.

Five cases coming under the author's observation were described.

Case I. was that of a young lady who, at the age of eighteen, had for the first time been taken to the theatre, and had seen Sothern, the actor, in the part of *Lord Dundreary*. From this time she spent her whole time in writing to Lord Dundreary, and thought and talked of nothing else. This continued several months, but under treatment and change of scene, gradually wore away. She subsequently married, and four years after her attack of insanity, her first child—a boy—was born. As the child became able to talk, he exhibited peculiarities resembling those of Lord Dundreary. He walked with a little skip, had a slight stammer in his speech, and his left brow was drawn down with the lids practically closed.

Case II. was that of a lady, a typical brunette, who was first married to a gentleman, a typical blonde. She was never pregnant by him. Subsequent to his death she married a gentleman as marked a brunette as herself. Her first child was a decided blonde. Both her own and her husband's relatives are all brunettes. The lady has since had three children—all brunettes.

Case III. was that of a lady who, during the first month of pregnancy, had been much worried over her oldest daughter, who had had her ears bored for rings. The ears became inflamed and caused much trouble. When the child was born, both ears presented the appearance of having been pierced for rings, and through at least one of the lobes a thread could be passed.

Case IV. was that of a lady who, at a very early period of pregnancy was much impressed by seeing three ladies, all of whom had harelips. When her child was born it had a double harelip.

Case V.—Mrs. X., married but a few weeks, was at the theatre with her husband. Something vexing him, he placed the point of his elbow on her hand and held it so firmly that she could not draw it away. Not wishing to make a scene, she bore it until she fainted. The fingers were much swollen and painful for several days. She never lived with her husband afterward. Thirty-five weeks and three days after the theatre incident, she gave birth to a son. On the left hand, the first and second phalanges of all the fingers and thumb were absent, looking as if they had been amputated.

Other reported cases were then referred to.

DR. GOODELL, of Philadelphia, related one case which seemed to bear out the theory. A physician was called upon to assist at the operation of circumcision. His wife, who was in the early months of pregnancy, was much interested in the operation and insisted upon having all the details. The operation occupied much of her thoughts. When her child was born, a boy, it was found that the glans was exposed, the prepuce well retracted with granulating edges, showing an appearance very similar to that of recent circumcision. He had recently seen an almost identical condition in a child, which could not be accounted for by any impression on the mind of the mother.

DR. SAMUEL C. BUSEY, of Washington, believed that there is some relation between mental impressions and fœtal deformities. Any prevalent and concurrent belief must be based upon an element of truth. This belief has prevailed since the time of Jacob. At the present time it is a fixed belief in the female mind. In the physical world there is no effect without a cause, and in the world of life the rule is the same. If we can demonstrate in any single instance a connection between the deformity and the mental impression, we must concede that such a thing can again occur. If there are any number of cases where we can show a precise correspondence between the impression and the deformity, the relation must be accepted as presumptively proven. Dr. Barker has cited some instances, and Dr. Goodell has given another case. In another case the mother, while pregnant, saw a man with an opening in his trachea from which a tracheotomy tube had been removed. The child, when born, exhibited a depression in the same position. Another case is reported where the mother received two distinct impressions, and the child was born with two distinct deformities corresponding to the separate impressions received. In another case the father had removed, in the presence of his mother, a metacarpal bone of one of the fingers. When the child was born it exhibited a corresponding deformity. A consideration of these cases can bring us to but one conclusion. The earlier in pregnancy the impression occurs the more frequently does the deformity follow and the greater is the correspondence between cause and effect.

The discussion was then postponed until the afternoon session.

AFTERNOON SESSION.

DR. JOHN S. BILLINGS, of Washington, said that there were many cases on record which cannot be explained by any knowledge which we now have. As to the influence of previous pregnancies on the characteristics of subsequent pregnancies, we have no scientific information. If we could obtain the statistics showing the char-

acters of children born of different fathers we should have some scientific data on which to form an opinion.

Dr. Barker remarked that in all the cases he had reported there was no evidence that the period since conception had been more than six weeks. He had rejected all cases in which conception occurred three or four months before the mental impression was produced.

Dr. John Byrne, of Brooklyn, presented a paper on

THE TREATMENT OF PROCIDENTIA UTERI BY GALVANOCAUTERY.

In regard to the relation of laceration of the perineum to prolapse of the uterus, the speaker held that laceration of the perineum, by interfering with the process of involution, may be a remote cause, but that laceration and prolapse can be associated in any other sense, cannot be admitted. Operations on the perineum can only influence the prolapse by offering an obstacle to vulvar protrusion. Only when a portion of, or the entire cervix is removed, can we look for permanent and satisfactory results after operation on the perineum.

In February, 1872, Mrs. H., the mother of four children, presented herself with the entire womb and vesico-vaginal wall protruding. She was thirty-five years of age. The cervix was ulcerated from the friction. She was treated by applications of glycerole of tannin and irrigation, for two months. The ulceration was healed, but no impression was made on the prolapse, or on the size of the uterus, which measured four and one-half inches. The cervix was then removed with the galvanocautery loop. The patient recovered without a symptom. Five weeks later there was no bulging of the vesico-vaginal septum, and the uterus could just be reached with the finger. No reasonable amount of force, by means of a volsella forceps, could draw it down. The patient was discharged cured, and has continued well.

The whole number of cases treated with the galvanocautery has been nine, but in only three has the cervix been removed. In six of the cases, linear cauterizations were required.

Case II. was a patient with procidentia, who had been treated with pessaries for a long time. The cervix appeared to be healthy. A double tenaculum was introduced into the cervical canal, and the whole mass pushed into the pelvic cavity, and lifted, to show the line of vaginal insertion. A groove sufficiently deep to admit the loop was then cut around the cervix, close to the vaginal vault. The hot loop was then adjusted, and the cervix cut through to the depth of one-fourth of an inch. The wire was then removed, and tampons of glycerole of tannin inserted. Two weeks after operation, the uterus resisted all reasonable efforts to depress it. Two years after operation no perceptible change was observed. The health had never been better, and menstruation was regular.

In *Case III.* the parts were returned, and the line of vaginal insertion marked in spots with the cautery knife. The entire mass was then drawn down, and a deep fissure, three-eighths of an inch in depth made around the circumference of the cervix. Then three incisions were made in the vagina, one central, and the others diverging, and the whole mass was then returned. The recovery was complete. In none of the cases has there been peritonitis of any severity.

The speaker highly recommended further trial of the galvanocautery in these cases.

Dr. George J. Englemann, of St. Louis, then spoke on

ELECTRICITY IN GYNECOLOGICAL PRACTICE.

After referring to the confusion which had surrounded this subject, he referred to the following points which should govern the use of electricity as a therapeutic agent: The formation of strict indications for the use of the galvanic and faradic currents; a differentiation between the varying forms and modifications of the galvanic and faradic currents; differentiation between the active and indifferent pole; the localization and concentration of the current; the precision of the dose; the use of stronger currents continued for a short time. He has used the galvanic or faradic current in the reduction of the size of neoplasms, fibrous polypi, cystic growths, and urethral caruncles; also, in chronic pelvic inflammation, and in chronic ovarian inflammation, in stenosis of the os, for the relief of the engorgement accompanying subinvolution, in prolapse when due to relaxation of the tissues. It is an aid in the correction of various forms of displacement; in metrorrhagia, when due to inflammation and relaxation; in certain forms of amenorrhœa, and for the relief of many annoying reflex symptoms. In obstetrics, it is useful in uterine inertia during or after labor; in cases of weak and irregular labor pains; in post-partum hemorrhage; in delayed involution; in paralysis of the urethra or bladder after labor, and in the interruption of extrauterine pregnancy.

The only contraindication to the use of electricity is the presence of severe acute inflammation. It may be used in subacute inflammation. In the more acute pelvic inflammations, care is required in its use.

A number of cases were then referred to, showing the beneficial effect of electricity in diminishing the size of fibroid tumors and in other conditions.

Evening Session

was devoted to

THE BUSINESS MEETING.

The following were elected

OFFICERS FOR THE ENSUING YEAR:

President.—Dr. A. J. C. Skene, of Brooklyn.

Vice-Presidents.—Dr. John C. Reeve, of Dayton, O., and Dr. Elwood Wilson, of Philadelphia.

Secretary.—Dr. Joseph Tabor Johnston, of Washington.

Treasurer.—Dr. Matthew D. Mann, of Buffalo.

Additional Members of Council.—Drs. W. H. Baker, of Boston; C. C. Lee, of New York; T. M. Drysdale, of Philadelphia; and A. Reeves Jackson, of Chicago.

The following were elected

NEW MEMBERS:

Drs. Charles M. Green, of Boston; A. F. A. King, of Washington; E. C. Dudley, of Chicago; A. W. Johnstone, of Danville, Ky.; J. E. Janvrin, of New York; H. Marion Sims, of New York; B. F. Baer, of Philadelphia; and W. Gil Wylie, of New York.

PLACE OF NEXT MEETING.

It was decided to hold the next meeting in New York, beginning September 15, 1887.

A communication was presented with reference to the organization of

A CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Dr. John C. Reeve, of Dayton, Ohio, offered the following:

Resolved, That this Society expresses an opinion favorable to the formation of the proposed Congress, but that the committee be instructed not to favor any plan looking toward a surrender of its distinctive title and character, or to interfere with the full and entire management of its own affairs in every respect.

The following amendments were offered and accepted:

1. That this Society does not favor meetings of the Congress oftener than biennially.

2. That the committee opposes, as far as possible, meetings in the month of June.

The resolution as amended was adopted.

The committee consists of Drs. Samuel C. Busey, of Washington; Fordyce Barker, of New York; T. A. Emmet, of New York; J. R. Chadwick, of Boston; and Joseph Tabor Johnston, of Washington.

NEWS ITEMS.

Meeting of the Committees of Conference of the various Special Associations requested to Participate in a Conjoint Session.—In response to the notice issued by the Secretary of the Committee of Conference of the American Surgical Association, the Committees of Conference met at the Army Medical Museum, Washington, D. C., at 12 o'clock noon, on Friday, September 24, 1886.

The meeting was organized by the election of Dr. S. C. Busey, of Washington, Chairman, and Dr. J. Ewing Mears, of Philadelphia, Secretary.

The Secretary reported that he had received notification of the appointment of committees by the following societies: American Ophthalmological Association, American Otological Association, American Gynecological Association, American Laryngological Association, American Dermatological Association, American Surgical Association, American Neurological Association, American Climatological Association, Association of American Physicians and Pathologists.

The following members of the Committees were present:

Ophthalmological Association: O. F. Wadsworth, M.D.; Samuel Theobald, M.D.; Wm. Thomson, M.D.

Otological Association: C. R. Agnew, M.D.; W. H. Carmalt, M.D.

Gynecological Association: S. C. Busey, M.D.; J. R. Chadwick, M.D.; J. Tabor Johnston, M.D.

Laryngological Association: J. F. Knight, M.D.; E. L. Shurley, M.D.

Dermatological Association: H. G. Piffard, M.D.; G. H. Tilden, M.D.

Surgical Association: C. H. Mastin, M.D.; J. Ford Thompson, M.D.; J. Ewing Mears, M.D.

Neurological Association: L. C. Gray, M.D.; J. Van Bibber, M.D.; J. Hendrie Lloyd.

Climatological Association: F. Donaldson, M.D.; W. W. Johnston, M.D.

Association of American Physicians: Wm. Pepper, M.D.

On motion, it was resolved that the Associations represented should vote by title, taken in chronological order, and as a unit.

Dr. Wm. Pepper offered the following resolutions, which, after careful consideration and discussion by those present, were adopted separately, and then as a whole:

1. That it is desirable that the American Surgical Association, the American Ophthalmological Association, the American Otological Association, the American Neurological Association, the American Laryngological Association, the American Gynecological Association, the American Dermatological Association, the American Climatological Association, and the Association of American Physicians and Pathologists, shall arrange for a conjoint meeting in the City of Washington, in the month of September, 1888, and subsequently at intervals of three years, at the same time and place.

2. That this arrangement shall not interfere in any way with the autonomy of each special Society; and that each Society shall retain the right to withdraw at any time from this conjoint scheme.

3. That the special feature of the meeting shall be the conjoint assemblage of the special Societies on two evenings during the session; on one of which there shall be an address delivered by the President of the conjoint meeting, and on the other there shall be communications by a referee and a co-referee on some subject of general professional interest.

4. That each special Society approving of this report is invited to appoint one representative (with an alternate), and that the representative so appointed shall constitute an executive committee to serve for one year, with power to elect such officers for the first conjoint meeting as may be deemed necessary; to prepare a programme for said meeting; to make all other necessary arrangements; and to prepare and submit a plan of organization for future meetings.

5. That all expenses connected with the conjoint sessions shall be apportioned equally by the executive committee among the special Societies participating.

Owing to the views entertained by the Committees of the Ophthalmological and Dermatological Associations, with regard to the intervals of time between the meetings, they abstained from voting upon the first resolution.

The Tenth Census.—The report of F. H. Wines, special agent of the tenth census, on the defective, dependent, and delinquent classes, is full of interesting details The number of males confined in prisons and workhouses in the United States in 1880 was 53,604, and of females, 5005. The number of prisoners to each million of the population was 1069; in 1870 it was but 853. There were 1833 insane persons, 1533 idiots, and 976 blind persons to each million inhabitants. There were 21,595 out-door paupers, and 66,203 inmates of almshouses, during the census year.

The Paris Academy of Medicine is reported to have announced the following remarkable subject for a prize essay: "Préciser par une série d'observations s'il existe un traitément abortif de la syphilis confirmée." To abort a confirmed syphilis appears to be as encouraging a task as the proverbial locking of the stable door after the steed is stolen.—*Boston Medical and Surgical Journal.*

Lead in Tinned Provisions.—Dr. Rabchevski, of St. Petersburg, has published the results of a series of investigations made on various kinds of tinned provisions, with the view of determining the suitability of food preserved in this way for the purposes of the army commissariat, especially when on active service. He first examined the tinned plates in the preserved provision manufactories, and found them in all cases quite free from lead. The case of the solder was, of course, different, the amount of lead contained in it varying from 60 to 70 per cent. The chemical examination of the contents of the tins was conducted by Pouchet's method, and showed that while some classes of food, such as roast meat, were quite free from lead, others, such as sour cabbage, which, to a Russian, is a very important article of diet, contained very appreciable quantities of lead, in one case as much as 0.327 per cent.; so that a man taking 200 grammes, or about a quarter of a pound, of this for his dinner would introduce into his system 0.654 gramme, or about eight grains, of lead—a quantity which, especially if taken frequently, can by no means be considered as harmless. The conclusion arrived at by the author is that these tinned provisions should only be used in the army in case of urgent need, and for a very short time. It would appear, too, that a choice might be made, only such classes of preserved food being accepted by the authorities as were shown to be least likely to become contaminated by the injurious substance contained in the solder.

The Bicycle and Prostatic Disease.—The *California Practitioner* says that horsemen, after the age of forty, begin to exhibit evidences of disease of the prostate gland. This being true, it is evident that the rider of the bicycle is much more likely to acquire such disease The genito-urinary specialist will rejoice in the prospective harvest afforded by the increasing use of the bicycle.

Farewell Dinner to Dr. R. T. Edes.—A farewell dinner was given to Dr. R. T. Edes, at Young's Hotel, Boston, Friday evening, September 17th, prior to his departure for Washington, where he intends to make his home and practise his profession.

About thirty of Dr. Edes's medical colleagues sat down at the table with him, the staff of the City Hospital, the Harvard Medical School, and the Dorchester Medical Club being especially represented. Dr. Francis Minot presided, and addressed the guest of the evening on behalf of the Harvard Medical School.

New York State Board of Health.—In the matter of food and drugs work has been vigorously pushed, and excellent monthly reports made, by the three chemists employed. The cream of tartar of the State has been thoroughly overhauled, and found to be, with few exceptions, adulterated. In two instances, at Brockport and Albany, a poisonous adulterant, oxalic acid, has been found. The entire stock in each case has been taken, its sale stopped, and efforts are being made to reach the manufacturers.—*Sanitary Era.*

New Lenses for Microscopical Work.—Professor Abbé, of Jena, has made an invention in microscopic lenses, which, if correctly reported, will work a new era in microscopical work. After five years' experimenting (rendered possible by a subsidy of $15,000 from the German government) Professor Abbé perfected a new combination, which, it is claimed, more perfectly corrects both spherical and chromatic aberration than any previous one. Some of the lenses composing the objective are of silicious glass, the remainder being compounds in which borax and phosphorus are leading constituents. These compounds were worked out by Dr. Scott in conjunction with Abbé, and the objectives have been made by Zeiss. Dr. Van Heurck describes them as follows in the *Journal de Micrographie:* The objective is homogeneous immersion, of a focal distance of three millimetres, or about one-eighth English measurement. It is not arranged for cover-glass correction, as this is not necessary, that function being obtained by means of the sliding tube of the body. It contains five lenses, and has a numerical aperture of 1.4, which is a trifle less than has been obtained in England and America (1.5); but so far as its optical qualities are concerned it is far superior to anything ever before made, the new glass permitting the absolute correction of all aberrations. The field is perfectly flat, the minutest object in the extreme edge of the field showing as sharply and clearly as though it were in the centre. With the vertical illuminator an amphipleura (silvered) is resolved into pearls—not merely in spots, but over the entire frustule, and with such clearness that these pearls can be counted. In the study of other diatoms I have found details which have hitherto escaped notice. As to the bacteria, details of structure are shown that have never before been seen—details that will without doubt serve to differentiate them by ocular means. Accompanying the objective are three eye-pieces, two for direct use, and one for photography. They are also made of the new glass and by entirely new optical formulæ.

Life Insurance.—A recent interesting case in the English Court of Appeal brings up some new points. It appeared that a person applied to a company for insurance, and answered in his application a large number of questions as to his habits, health, etc. In addition to this, as is the usual custom, he was examined by a physician, and upon his report the risk was accepted by the company, but only on the terms that there should be no insurance until the premium was paid. The gentleman was prepared to pay the premium whenever the papers were ready, but before they were ready a change had come in his health, making the risk a poor one, and the company refused to issue the policy. The premium was tendered, but refused by the company, and a suit was brought to compel the issuing of the policy. The court declined to take this action, and held that there was no binding contract until the premium was paid. If it had been tendered at the time of the acceptance of the application, instead of waiting for the preparation of the policy, the company would have been obliged to issue the policy.

A District Nurse Society has been formed in Philadelphia for the care of the sick poor in the Third District (Fifth, Seventh, and Eighth Wards) who cannot be sent to the hospital. A trained nurse is provided by

the Society to visit those who are ill and give them such care as is needed. The office is at No. 1030 Race Street.

The Society will also furnish bed linen and other comforts for the sick. For these services a charge of five cents a day is made, except in case of extreme poverty. The members of the medical profession are requested to send notice to the Society of those who require a nurse's aid, and with this notice there should be directions for the nurse in case any special treatment is required.

Testing House-drains.—At a conference in connection with the Building Exhibition held in London under the auspices of the Society of Architects, Mr. R. K. Burton described methods used by himself in testing the soundness and arrangement of house-drains. Three questions, he said, were to be decided: (1) Is the drain water- and gas-tight? (2) Is it self-cleansing? (3) Is it disconnected from the sewer? The first point is best decided by a test; but it is well to observe the appearance of the joints before taking the trouble to apply any test, as such may at once reveal the fact that the drain is leaking. In more cases than those who have not made many inspections would imagine, it will be found that there is absolutely nothing in the joints of a tile-drain. In others it will be found that there is clay only, and he had never known a clay-jointed drain to be water-tight. In still other cases it may appear, from looking at the tops of joints, that they are carefully made with cement; but when a rod of iron or a chisel is plunged into the earth underneath them, it comes up wet and black with sewage. It is only when none of the appearances described are to be seen that it is worth while applying a test. The best undoubtedly is the water-test. In this the drain is opened by the removal of a pipe, and is plugged.

It will be found impossible to fill more than perhaps about one out of three drains, except in houses which have been very recently remodelled, and that it is necessary to avoid pouring too much water into a leaky drain. If the drain does fill up the running water is stopped, and it is observed whether the water in the gullies or surface-traps remains at a constant level. The test next in efficiency to that by water is the smoke-test. The next question is as to whether the drains are self-cleansing or not. As in the case of the water test, an opening must be made; but it is not needful to remove a whole pipe. It is sufficient to chip a round hole in the top of one. If no deposit appears just under the opening, water is allowed to run into the drain at the upper end, and the flow is observed at the opening. If the water runs briskly and clear past the opening all is right. If, however, it comes tardily, and carrying deposit with it, it is a question of ascertaining the cause. A drain, if well laid, should, with a fall of one in sixty, clear itself. A house-drain should seldom or never be larger than six inches; four inches is large enough for very small houses, and if five inches were the size generally made, it would probably be better than either four inches or six inches for the majority of houses. Now as to whether the drain is disconnected from the sewer or not. To make absolutely sure whether or not there is a concealed trap on the drain, if the opening does not reveal this, the only plan is to pass rods down the drain. One may, however, have evidence approaching to certainty by burning a match in the drain, and observing whether or not there is any current of air through it. If there is, it may be assumed that there is no trap on the drain. It is necessary to test each branch for self-cleansing properties. The material for soil-pipes should be ascertained by removing the wooden casings which generally cover them. If an internal soil-pipe is made up of light cast-iron pipes (rain-water pipes), and lead junction-pieces for the closets, it may be condemned without any further investigation. The best test for a whole-drainage system is undoubtedly the smoke-test. This test consists essentially in filling the drainage system with smoke at some pressure, and observing whether or not it issues at any place other than the openings intended for ventilation.

Smoke-rockets are now largely used by those who have to make inspection of sanitary arrangements. These consist of paper cases filled with a composition which gives off a vast quantity of smoke at a considerable pressure. The smoke-test can never be taken—when it gives negative results—as an absolute test for drains. The peppermint-test is inferior to the smoke-test when the latter is properly applied, in the speaker's opinion. The next thing of most importance to do is to trace the overflow-pipes of the cistern to see whether these are connected with the drain or not. A connection of any kind between a cistern and the drain is a thing to be condemned. The baths, sinks, basins, etc., come next under examination. The discharge-pipe—and overflow, if there be one—of each of these must be traced to discover whether or not it is connected with the drain. The closets must be very carefully examined, although they are not nearly so often the points of ingress of sewer-gas to the house as in any other appliances, such as sinks. They are often, however—especially when of the old pan form—themselves generators of foul gases, and as such objectionable.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 21 TO SEPTEMBER 27, 1886.

Fisher, W. W. A., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, to take effect September 10, with permission to apply for one month's extension.—*F. O. 88, Department of Arizona*, September 1, 1886.

Gandy, Charles M., *First Lieutenant and Assistant Surgeon.*—Assigned to duty at Fort Concho, Texas.—*S. O. 131, Department of Texas*, September 18, 1886.

Bache, Dallas, *Major and Surgeon.*—Granted leave of absence for twenty-five days, to take effect on or about October 2, 1886.—*S. O. 143, Division of the Atlantic*, September 24, 1886.

Appel, Daniel M., *Captain and Assistant Surgeon.*—Assigned to duty at Fort Davis, Texas.—*S. O. 133, Department of Texas*, September 22, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING SEPTEMBER 25, 1886.

Bailhache, P. H., *Surgeon.*—Granted leave of absence for thirty days, September 25, 1886.

Vansant, John, *Surgeon.*—Granted leave of absence for thirty days, September 24, 1886.

Bratton, W. D., *Assistant Surgeon.*—Relieved from duty on Revenue Steamer "Corwin," and ordered to duty at Marine Hospital, San Francisco, California, September 20, 1886.

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ORIGINAL ARTICLES.

THE SUBIODIDE OF BISMUTH IN THE TREATMENT OF ULCERATIONS.

BY A. SIDNEY REYNOLDS, M.D.,
OF PHILADELPHIA.

IN 1876, while resident physician in the Presbyterian Hospital of Philadelphia, I devoted considerable time and attention to the study and treatment of wounds and ulcerations, and to experiments directed to the modification of the tegumental tissues in repair, to obtain, if possible, more rapid and more normal cutification or cicatrization than was common.

Having been granted unusual facilities to pursue these studies during my service, I was enabled to have constantly under my care and observation a great variety of chronic ulcerations.

Skin grafting was then fashionable, iodoform was the popular dry dressing, and subnitrate of bismuth was in common use.

Among a number of new preparations sent to the Hospital for trial, with no claims for therapeutic value, was the "subiodide of bismuth," made by R. A. Fairthorn, an experimental chemist of Philadelphia at that time.

The chemical affinities of the new salt with the subnitrate and iodoform suggested its use for its supposed alterative and sedative properties. It was at once seen that it not only met my expectations, but that its action in some unexplained way was simply marvellous. Ulcers which had previously defied all treatment, seemed to yield at once to its influence.

In the face of my evident successes, it was said that either my cases were "easy ones," or that the coincident treatment and favorable surroundings were the secret of success.

As a test case, an inmate of the Philadelphia Hospital who had an ulcer that had resisted all treatment for over ten years, and who had finally been pronounced incurable, was, by permission, transferred to the Presbyterian Hospital for treatment. His was the worst case of atrophic ulcer I have ever seen; the leg was little but skin and bone, and looked as if a few hours might make it an elegant dry specimen for the museum. Under the use of the subiodide of bismuth alone, he was returned cured in three weeks.

The subiodide was then introduced into the Philadelphia Hospital, and received the highest praise; but its use was discontinued shortly afterward because it was "too expensive."

The new preparation never became popular; no therapeutic claims were ever made for it so far as I know; it was not generally introduced, and its manufacture was stopped soon after.

Personally I have continued its use for chronic ulcerations during the past ten years, and of late have discovered such additional properties as will make it a valuable addition to the materia medica, and the armamentarium of the surgeon. It will control inflammation, allay irritation, suppress suppuration, promote granulation, and induce cicatrization. It has been found to be almost a specific in gonorrhœa, in various septic and specific mucous inflammations, oral and nasal catarrhs, ophthalmias, etc., in chancroids, rectal ulcers, etc., and in the various cachectic and dyscrasic ulcerations.

Internally it is strongly recommended in gastric ulcer, gastritis, and in typhoid fever.

Its therapeutic and physical properties may be summarized as follows:

a. It subdues the inflammatory process.

b. It substitutes the inflammatory regeneration of tissue with a neoplastic force, which closely simulates normal embryonic histogenesis.

c. It is, by its action, *a vital aseptic*.

d. It prevents the formation of pus.

e. It lessens direct and reflex irritability.

f. It is so bland and unirritating that it can be used on any surface.

The subiodide of bismuth, by virtue of these properties, is almost a specific for ulceration.

There are certain kinds and conditions of acute and chronic ulceration which may require special treatment, preliminary to or coincident with the use of the subiodide of bismuth.

The asthenic or œdematous ulcer; the congested, the inflamed, the irritable, and the readily bleeding ulcer; the ulcer with exuberant or fungous granulations; the cachectic, the varicose, the phagedenic, and sloughing ulcer: the ulcer with callous edges; the eczematous, syphilitic, scorbutic, scrofulous, lupoid, and cancerous ulcerations: all may require some radical or specific treatment to convert them to a simple form of ulcer, or to remove pathological elements which would retard or impair healthy tissue formation.

Particularly should attention be directed toward restoring a normal condition of the cutis and its accessories. Varices may be compressed or obliterated by other means; œdema, congestion, or inflammation controlled by position and rest; nodules of specific character, as in lupus, rodent ulcer, etc., ablated with caustic potassa; the irritable ulcer allayed with chloral; the errhytic or readily bleeding ulcer blanched with a five per cent. powder of salicylic acid; exuberant granulations resolved with bromide of potassium; the callous edges cut down with salicylic acid or the knife; phagedena and slough controlled with caustics or chlorine; the atonic bases of syphilitic ulcers stimulated with nascent iodide of mercury, etc. These or other

accessories may be required, but in a great majority of cases the subiodide of bismuth alone will prove sufficient.

The action of subiodide of bismuth on an ulcerating surface is presumably as follows: Iodine acts upon granulation tissues, inducing an increase of all normal physiological processes (Schede, *Arch. f. klin. Chir.*, 1882, xv. p. 14); it produces a protoplasmic energy ordinarily obtained only by congestion, hyperæmia, or inflammation, and induces a reversion of the tissues to an embryonic state. It imparts a formative impulse or force to the cellular elements of the three germinal or blastodermic layers and their derivatives, which closely approximates to the laws of normal development. Its specific action as an alterative in certain dyscrasiæ is also a valuable factor. Iodine ranks high as an antiseptic agent, having power to inhibit germ development, being efficient in the proportion (minimum) of 1 to 4000.[1]

The bismuth unites with the albumen, forming an albuminate, which acts as a sedative, aseptic, impermeable coating on the granulations; retarding evaporation of the cellular moisture; modifying the formation of striated connective tissue from the gelatinous intercellular substance, and preventing the retrograde metamorphosis of the white blood-corpuscles. Its oxygen may play some chemico-vital part in the process, possibly in its nascent state as an aseptic.

They simply oxidize the deoxidized pus, rendering it an unfit soil for septic germs, and possibly feed the struggling tissues enough oxygen to promote granulation.

Under the use of the subiodide of bismuth ulcers, which usually heal by cicatrization at the rate of one-half to one line per day, have been seen to dermatize at the rate of three to five lines per day. The cicatrix is fleshy and firm, and is but little disposed to destructive inflammations or subsequent alterations, even over syphilitic sores.

The shape of the ulcer seems to be no obstacle to the process of cutification, circular healing as rapidly as linear or oval ulcers.

The formative force does not seem to diminish as the centre is approached, thus differing from common healing, and indicating that the process is not one especially of stimulation, but a truly regenerative force imparted to the tissue elements. Surfaces denuded by gaping after division of cicatrices will rapidly heal under its use.

Its utility, in my observation, has in no instances been more forcibly shown than in cases of indolent ulcers, where, to save time, I have used it only on the centre of the sore while the edges were undergoing some preparatory treatment; active germination of the peripheral cutis having been observed to commence before the morbid epiderm began to show any improvement. The same phenomenon has been observed with skin grafts.

Subiodide of bismuth then, in ulceration, appears to be, if not a true specific, at least a decided chemico-vital adjunct to tissue repair. By its manifest virtues and properties, and its entire freedom from any objectionable features, it will bear comparison with any therapeutic agent or system.

Subnitrate of bismuth, iodoform, oxide of zinc, burnt alum, clay, "mineral earth," etc., have been lauded as perfect dry dressings. Each has its virtues, and each its faults.

Subnitrate of bismuth, from liberation of nitrous acid or from contamination with arsenic, is to some degree aseptic, but it is not free from danger by absorption, having been known to cause enteritis, nephritis, and gangrenous stomatitis.

Iodoform also is credited with numerous toxic sequences from absorption, and is objectionable on account of its odor.

In the subiodide of bismuth, we have a perfect dry dressing; it is bland, unirritating, and, if absorbed at all, has never yet proved injurious; it supports life, promotes nutrition, and maintains the integrity of the tissues—hence it is a *vital aseptic*. It is probably an "inhibitory antiseptic,"[1] being potent in holding in check the development of pathogenic germs by sterilization of the tissues and their discharges. It gives physiological rest by restoring the functional relations of cell life, and it makes the work of repair a passive process.

In the following description of its use I have followed the treatment of a bad case. In many cases I have known a single application entirely to heal ulcers that had long resisted treatment by other means.

My usual proceeding in a case of chronic leg ulcer is as follows: I first thoroughly wash and cleanse the face of the ulcer, removing all slough, shreds of tissue, foreign matter, etc. I then disinfect it well, generally with solution of acetate of aluminium, *q. v.*, and then dry the surface of the ulcer and the surrounding parts. The granulations are then dusted with, or the ulcer packed with the subiodide of bismuth, alone or in combination, or with whatever powder may be indicated by the exigencies of the case. Calomel, salicylic acid, and bromide of potassium, I have found very useful. I then, while holding the limb vertically to drain it (the patient on his back), firmly strap it with adhesive plaster from below upward. The straps should be about one inch wide, and are applied as a spica, nearly surrounding the leg, and extending an inch or more above and below any œdematous or congested part. A firm bandage is then applied, including the foot, and the patient is allowed to go about as usual. This dressing, according to circumstances, may be allowed to remain from one to four days, and it may or may not need renewal.

When in proper condition—that is, when the ulcer has assumed a healthy aspect—the remainder of the treatment is simply to dust the granulations with the subiodide, protect with a Maltese cross or perforated square of plaster, cover with a thin layer of absorbent cotton, and again apply the bandage firmly.

These dressings should be renewed in from two to five days, when the limb may be gently rubbed to stimulate the circulation, or the patient may be al-

[1] Sternberg, table, American Journal of the Medical Sciences, April, 1883.

[1] Lister, British Medical Journal, October 25, 1884, p. 804.

lowed to stand or walk about for a few minutes without the bandage.

In removing the dressings I use no force to dislodge any of the powder which may have dried on the surface or about the edges; but I generally douche the granulations with diluted alcohol or the solution of acetate of aluminium.[1] In some cases the ulcer is not washed at all from the beginning to the end of treatment, any moisture or discharge being lightly sopped off with absorbent cotton.

If the surrounding skin shows any irritation from the plaster or from pressure, I dust the part with the subiodide and smear the surface with Goulard's cerate.

Strapping and bandaging, as used by me, are simply valuable adjuncts to secure physical rest to the parts; on other parts of the body pressure is seldom required.

In gaping wounds with no loss of tissue, after drying and dusting with the subiodide, I use the extraneous ligature; that is, the parts are approximated and held in position by lacing together the free edges of parallel strips of perforated or porous plaster. The edges of such wounds are generally covered with a strip of lint saturated with the compound tincture of benzoin. It is surprising how often by these means such wounds will heal by first intention.

In recent wounds and acute ulcerations, the dressings should be less frequent than in chronic cases.

Proper diagnosis of the individual characteristics of ulcers and specific therapeutics of special indications, will certainly influence the results; and these must depend upon the judgment of the surgeon.

If the subiodide of bismuth is used properly, the prognosis in every case may be "certain cure in half the time, and with far better results than can be obtained by any other treatment."

The prescription price of the subiodide of bismuth is from twenty to twenty-five cents per drachm, and as it is dusted on or used freely, it will require from a drachm to an ounce to effect a cure in an ordinary case of leg ulcer; so it is comparatively inexpensive.

Subiodide of bismuth has been used in the treatment of gonorrhœa with the greatest success. (Bis. subiod. gr. xx: glycerin et. aq. āā ℥iv, as an injection.) I would suggest that it would do better used dry, if the urethra could be rendered patulous; or it may be used in the form of a soluble bougie.

It has been used successfully in rectal ulcerations (bis. subiod. ℥j, unguent, ℥j), applied with an ointment syringe.

It is highly recommended for internal use (gr. v–x ad. glycerin ℥j, t. i. d. or p. r. n.) in gastric ulcer, intestinal irritations, and in typhoid fever; for gastric ulcers or intestinal irritations it should precede food at least an hour.

Many other local and general uses of the new drug might be suggested: it has properties which deserve therapeutic investigation and application, and which should appeal to the profession for extended use.

I would be pleased to answer any inquiries regarding it, or to hear from any one of its use and results.

[1] Sol. acetate of aluminium: ℞. Alum. sulph., gr. 198; plumbi acet., gr. 446; aq. ℥xvj=sol. aluminii acet., gr. x ad. ℥j—the proper strength for use.

Until recently, the subiodide of bismuth has practically been out of the market. It is at present manufactured by Dr. Charles G. Frowert, Twelfth and Vine Streets. The original preparation was variable in color and not entirely free from some irritating foreign substance in crystalline form.

The subiodide or oxyiodide of bismuth is produced, as an insoluble precipitate, in the reaction between KI and BiO,NO_3 in the presence of HCl. It is a heavy, amorphous, impalpable powder, of a bright red color, odorless and almost tasteless; it is neutral in reaction, and perfectly insoluble in water, alcohol, or ether. Sp. gr. 6.73. It contains, as its formula indicates, BiOI: Bi 208, O 16, I 127 parts in every 351, or an equivalent of nearly one grain of iodine in every three grains of the subiodide.

No. 1217 Vine St., Philadelphia.

ARTHRITIS DEFORMANS.[1]

By JAMES M. FRENCH, A.M., M.D.,
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Arthritis deformans was not recognized as a distinct disease by the ancients, but was confounded with chronic articular rheumatism and gout. We find, for instance, in the "Satyres and Epistles" of Horace, in the works of Martialus, Celsus, and other writers, references to the disease chiragra (finger gout), which there is every reason to believe was arthritis deformans. Aretæus, in fact, faithfully describes the affection under this title. But any uncertainty that might now remain of its existence at the time of these writings, or even before it, has been removed by the exhumation of bones, bearing the characteristic deformities, in the ruins of Pompeii, in the catacombs of Paris, and in an ancient monastery at Pomerania. Sydenham, in 1766, wrote the first accurate description of the disease, but failed to identify it as an independent malady, considering it a variety of rheumatism. Landre-Bouvais, of France, in 1800, and Heberden and Haygarth, of England, a few years later, described, under the title "nodosities of the joints," the polyarticular variety, distinguishing it from both gout and rheumatism. Brodie, Chomel, Aston-Key, and others mentioned the monarticular form of the disease, but Adams, Colles, and R. W. Smith, of Ireland, were the first to describe it minutely, especially as it occurs in the hip (morbus coxæ senilis). It remained, however, for German investigators (Rokitansky, Förster, Virchow, Volkmann) to study the morbid histology of the affection, and to demonstrate that the lesions attending the two varieties of the affection are identical. We are indebted to Charcot for the best classification of the disease, namely: 1. The polyarticular or general form. 2. The monarticular or partial. 3. Heberden's nodosities.

Symptoms.—Arthritis deformans is an essentially chronic affection, advancing slowly, and continuing indefinitely. Yet the most chronic cases are frequently attended by an occasional acute paroxysm,

[1] Read before the Cincinnati Academy of Medicine, September 6, 1886.

and in a certain, rather small proportion of cases, the onset is sudden and violent. In either instance, the symptoms may closely resemble those of a mild attack of acute articular rheumatism.

The general and partial varieties of the disease have few features in common. The former is usually symmetrical, invades by preference the smaller joints (fingers and toes), and appears coincidently in corresponding joints of the opposite limbs. The monarticular or oligarticular variety is generally confined to one or a few of the larger joints (hip, knee, shoulder, elbow, spine). The former is a disease of early or middle life, much more frequent in the female sex; the latter is observed for the most part in the aged and decrepit of both sexes.

The variety described by Heberden is probably the same disease modified by constitutional peculiarities, natural or acquired. The disease presents most of the features of arthritis deformans, both in its choice of subjects and in the appearance of the affected joints, but is peculiar in that it seldom leaves the articulation first affected, and that it seldom or never develops in any but gouty individuals.

The individual who is about to become the victim of arthritis deformans usually first observes a numbness and stiffness of the joints, most frequently of the metacarpo-phalangeal articulations of the index and middle fingers. These then become slightly swollen, painful, and hot. The pain is often intense, is generally spasmodic and worst at night, is aggravated by pressure and still more so by motion of the affected joint, and becomes almost unbearable during the acute paroxysms of the disease. The attack lasts but a few days, however, and subsides often without treatment, or under home remedies. Several attacks of this character usually occur at intervals of from a week to a month or more, one or several additional articulations becoming at each time involved, and the enlargement and deformity of the previously affected joints becoming with each paroxysm more permanent, until immobility and apparent dislocation result. The disease when situated in the upper extremities advances, as a rule, in a centripetal direction, from the fingers to the shoulders; but in the lower extremities it frequently pursues a reverse course, beginning at the knees. The disease has its remissions, but no regression. With its advance the progressive deformity and immobility of the joints increase, and the individual becomes more and more disabled, his muscles atrophy from disuse, his general strength fails from want of exercise, until he becomes, in the worst cases, utterly helpless—helpless on account of his deformities, however, more than from actual suffering, although it is seldom that pain is long absent from the affected members. Motion of the joint is frequently attended by a creaking or a grating crepitus that is both heard and felt. These are the individuals too, whose bones do barometric service in foretelling changes of the weather. The pain to which I have referred is not always confined to the affected joint, but frequently invades the muscles and nerves of the entire limb, especially when the disease is located in the lower extremities. Last winter I treated a case of arthritis of the shoulder of five months duration, in a woman about fifty, who was confined to her bed and had to rest her arm on a pillow, the limb being so exceedingly sensitive and painful that morphia had to be administered at regular intervals until the more severe symptoms had subsided. Such myalgic and neuralgic pains frequently precede for a variable time the articular inflammation, and sometimes persist for a long time after the disease has apparently subsided. A case that recently came under my observation had suffered for two years from a violent sciatica before the arthritis of the hip was recognized by the characteristic crepitus. A consequent rigidity of the affected muscles is further an important factor in the production of deformity. Notwithstanding the suffering that is often endured by these individuals, the nutritive functions are usually well performed, and in mild cases the general health is maintained.

The deformity which results from arthritis deformans is best studied in the hand. Sydenham said the joints of the fingers appeared to be turned over. Such is usually the appearance of at least the first phalangeal articulation, and this with the moderate flexing of the metacarpo-phalangeal and second phalangeal joints, the epiphyseal enlargement, and the wasting of the interosseous muscles, gives the fingers a peculiar conical, or in some cases a claw-like appearance. Fortunately the thumb often escapes, and when attacked is usually flexed toward the palm. The deformity of other joints need not detain us. The spinal column becomes distorted at a time when compensatory curvature does not take place. The shoulder, hip, knee, and elbow, from long resting in the position which secures for them the greatest immunity from pain, become fixed and render the limb useless and a burden. But probably the most lamentable case is that in which the temporo-maxillary articulation becomes immobile.

Complications seldom arise in the course of this disease, but asthma, pericarditis, endocarditis, pleurisy, hemicrania, such cutaneous diseases as psoriasis and lichen, and various cerebral and spinal affections have been reported in connection with it. They are as a rule, I think, merely coincident, although their occurrence is undoubtedly due, in many cases, to the attendant impoverished state of the system. Pericarditis and endocarditis, when they occur, can usually be traced to a precedent or an intercurrent attack of acute articular rheumatism. The affection has little or no influence on the duration of life, and the patient generally lives to die of cerebral hemorrhage, pneumonia, or other disease incident to old age.

Etiology.—The causes of arthritis deformans are obscure, and such must of necessity be the case until we shall have acquired more definite knowledge of the nature of the disease. To say that it occurs spontaneously or without a definite cause is merely to evade the point at issue, and contrary to all analogy. The polyarticular form of the affection occurs most frequently in females between twenty and thirty years of age. The occurrence of frequent pregnancies or of menstrual disorders and prolonged lactation have been observed as frequent antecedents of the disease, and have, therefore, been considered important

etiological factors. The belief in such relationship is strengthened by Fuller's eleven cases in girls under eighteen, ten of whom had suffered from various menstrual disorders, and probably also by its frequency about the time of the menopause. That these influences are only predisponent, and in no way essential, is abundantly demonstrated by the occurrence of the disease in males and in females not the subjects of disease.

Gout was once supposed to be closely related to the disease, but at present there are none who hold that it bears more than an indirect relationship to it. Arthritis occurs in gouty subjects, and has been observed coincident to it; but there is little similarity between the two diseases in their purity. Charcot, Trastour, and others have observed a hereditary transmission of arthritis deformans from gouty parents, but not many such cases are on record.

That acute articular rheumatism bears at least so much as a hereditary influence upon arthritis deformans is held by some. Others maintain that it directly predisposes to it or produces it. The occasionally acute onset of the disease, with its amenability to the same remedy, and its liability to recur, favor this view; but there should be little question of the non-identity of the two affections, for in the nodular arthritis the elevation of temperature and other indications of constitutional disturbance are less marked, and there is an absence of the profuse perspiration, the tendency to rapid migration, and the cardiac complications so characteristic of the acute affection.

That the disease is a variety of chronic articular rheumatism, as was once thought, is no longer tenable. Chronic articular rheumatism is frequently of long duration, and may lead to impairment of motion; but its point of origin and course are usually different from those of the nodular disease, and it is not usually symmetrical. The last distinction is of importance if the observations of Cazalis be true that two-thirds of the cases of chronic rheumatism are unilateral. That the latter predisposes to the nodular disease there is no reason to deny, although the fact has not been established. Gonorrhœal rheumatism has closely preceded the deforming arthritis, and is considered by Ord, Hutchinson, and others, a variety of the latter affection. A great difficulty in the way of all these views is the fact that many other diseases have preceded the affection with almost or quite the same frequency as have rheumatic diseases. Tuberculosis and its neighbor, scrofula, bear probably a much less important relation to the affection, although Cornil, Charcot, and Fuller regard them as frequent antecedents with somewhat of a causative relation. Such other factors as poverty, with its insufficient or improper food and clothing, grief, anxiety, etc., need not detain us. But a prolonged residence in cold, damp, and badly ventilated dwellings, is recognized as one of the most frequent exciting causes of the disease, which does not always appear, however, until long subsequent to such exposure. Direct injury, a blow, a fall, or a fracture, is named as an occasional cause of the polyarticular form of the disease, and is probably the most common exciting cause of the monarticular variety.

A tropho-neurotic origin has been sought, Remak and Benedikt, among others, regarding the affection as a result of irritative states of the spinal cord and the sympathetic. Remak named the disease arthritis myelitico-neurotica. This theory obtains its chief support from the fact that an arthritic affection sometimes accompanies lesions of the nervous system, notably locomotor ataxia, as described by Charcot, and from its usual symmetry. The analogy between arthritis deformans and the bone lesions of locomotor ataxia are hardly apparent. The diseases develop under different circumstances and produce contrary results. The joint lesions of locomotor ataxia commence in the bone, are atrophic, and generally painless, are acute, and produce preternatural mobility rather than fixation of the joint; and, in addition to this, they develop in the presence of the characteristic manifestations of locomotor ataxia. Deforming arthritis, if the result of irritative states of the nervous system, is anomalous in being as a rule the only manifestation of such condition. Still the fact that joint lesions of another character may result from spinal disease, forbids the exclusion of nervous influence from the etiology of this affection, especially in view of the fact that so many nerve lesions leave no recognizable traces after death.

One other possible cause remains to be considered. This is the possibility of the disease having its origin in the action of microörganisms. The question has received only the most transient notice from recent authors, and little or no investigation of it has been made; but the recent discovery by various observers of microörganisms in a number of chronic diseases in which their presence had been persistently denied, renders the subject worthy of consideration. There are certain features of the disease which lend support to the supposition of such a cause. It is a well-known fact that arthritis deformans frequently follows an injury, that it frequently attacks joints that have previously been inflamed, and that in nearly all cases it develops in individuals whose bloodvessel walls are almost of necessity impaired by anæmia, malnutrition, hemorrhage, prolonged lactation, or actual disease—all of these conditions favoring the growth of germs. These facts are sufficient, I think, to indicate the desirability of research in this direction.

On the other hand, there is much to contraindicate the possibility of a mycotic origin in this disease. It is not attended by a cachexia, it does not directly affect the duration of life, it is during a greater part of its course afebrile, and it is not to all appearances contagious or infectious. I do not believe, therefore, that it is admissible, in the present state of our knowledge, to do more than to submit the three following essential factors in the etiology of the disease: First, a hereditary tendency or an impoverished state of the general system; second, a derangement of the local blood supply, probably of a tropho-neurotic origin; and, third, a directly exciting cause, as a trauma.

Pathology.—Arthritis deformans is a chronic inflammation of the articular cartilages of the joints. The process first manifests itself in an irritated state of the articular surfaces of the cartilages, but all the component tissues of the articulation soon become

congested. The synovial membrane becomes thickened and opaque, the fringes enlarged, and the villi elongated and thickened. The increased nutrition soon leads to a proliferation of cartilage cells, new cells having distinct walls forming within the membrane of the original or mother cell. Sacs or pouches of considerable size are thus formed throughout the substance of the cartilage. Owing to the pressure of articular contact, the sacs immediately upon the surface of the cartilage rupture and discharge their contents into the cavity of the joint. By a similar rupture and evacuation of distended cell-membranes beneath, the cartilage soon acquires a ragged or excavated appearance. The matrix substance becomes fibrillated and split into shreds. Fatty degeneration ensues, and causes the removal of the articular portion of the cartilage by absorption. At first there is a slight increase of synovial fluid, but later the joint becomes dry. Before this stage has been reached, however, the underlying bone has taken on a formative inflammation, fortifying itself as it were, by a thickening of its compact layer. After the removal of the articular portion of the cartilage, these compact surfaces of bone are permitted to come in contact, and by their constant attrition, become smoothly polished. Although the process is the same in all parts of the articular cartilage, the result in the peripheral zone is quite different from that just described. Here the distended cell-membranes are prevented from rupturing by the synovial membrane. The few cartilage cells normally found in the synovial fringes also proliferate. In this way new cartilage is formed in which calcareous particles are soon deposited and the process of ossification takes place, and a more or less nodular rim is formed around the articular heads of the bones. In some cases these nodules are attached by small pedicles, which fracture, and thus are formed the movable bodies occasionally found in the joint. In protracted cases the inflammation may extend to the periosteum and to tendons in or around the articulation, and we have in the one case the formation of new bone, in the other, a calcification of the tendons. Sometimes in very aged subjects a rarefying ostitis develops in the denuded ends of the bones and causes a still more extensive destruction. Tendons also which have become calcified are sometimes removed by absorption. The locking of the joints is rarely the result of true ankylosis, but is rather due to the encroachment of the nodosities upon the shaft of the bone or to the interlocking of osteophytes. The muscles that are thrown into disuse undergo fatty degeneration. The result of search for the cause of the disease has been for the most part negative.

Treatment.—The unsatisfactory results obtained from all methods of treating arthritis deformans are almost proverbial. That the disease is in a measure amenable to proper treatment, however, has been abundantly demonstrated. The systematic treatment resolves itself into three classes: first, the prophylactic, or the meeting of causal indications; second, the treatment of the acute stage; and third, the treatment of the intervals of chronicity. The first indication, therefore, is to search for the cause or any influences that may predispose to the disease, and if possible to remove or counteract them. Anæmia, malnutrition, menstrual disorders, and even such affections as are not usually considered related to the disease, but are known to be in any way capable of debilitating the constitution of the patient, should be treated. The use of iron, arsenic, cod-liver oil, and tonics is here indicated. A change of residence from a swampy to a dry locality, or from above a damp cellar to well-ventilated apartments in many cases will be followed by the most gratifying results. In the treatment of the acute attack, the patient should be confined to bed, the affected parts elevated and placed in the most comfortable position attainable. Hot or cold applications may be made if not painful. The salicylate of sodium is the only remedy which has proved of real benefit, and should be given in large doses (at least fifteen grains every three hours), until its full physiological effects are produced, and even then its administration should be carefully continued for a month or more after the attack has subsided. The remedy does not act with the promptness that attends its administration in acute articular rheumatism, but should not therefore be abandoned without a persistent trial. Anodynes, especially opiates, must be used with caution, because of the difficulty with which their use is discontinued.

Iodine is the only remedy which has acquired a reputation in the treatment of the chronic periods of the disease. It may be administered in any of the officinal forms, the tincture, the compound solution, or in combination with potassium or sodium. It should be given with regularity and perseverance. Small doses, two or three drops of the tincture or solution, or five grains of the iodides, thrice daily, well diluted, are to be employed during the first week, when they may be gradually increased to three or four times this amount. The local use of iodine is also recommended, either in the form of the tincture or a salve rubbed into the integument over the affected parts. Hot fomentations, poultices, and warm flannels are frequently useful both for the relief of pain and for the reduction of inflammation, but heat is not always agreeable. Warm baths (100° to 110° F.) are highly recommended. Medicated water and peat baths have also been lauded, but their sole virtue doubtless lies in their temperature. One other measure is of the utmost importance, and should be insisted upon, the more because of the fact that it is so frequently neglected. I refer to the regular, perseverant exercise of the affected joints at all times except during the febrile stages of the disease. Where the joint is very sensitive only the most gradual passive motion can at first be tolerated, but less limited movements will soon be yielded to. The object of this procedure is to stimulate the secretion of the synovial fluid, and thus prevent in a measure, at least, the eburnation and final rarefaction of the joint surfaces. It also aids in the prevention of the pseudo-ankylosis. I have seen marked benefit in a case after two months forced exercise of a joint thus affected without any other treatment. Finally, if there is any one feature of the treatment that is above all others essential, it is perseverance.

SOME RECENT INVESTIGATIONS CONCERNING BACTERIA IN DRINKING WATER.

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The testing of drinking water as to its germ life, according to the method first suggested by R. Koch, has proved, in many cases, of great value in supplementing the chemical analysis. In fact, many of those prominent in matters pertaining to public hygiene are inclined to place more faith upon the estimation of the number of bacteria in a given quantity of water than upon the determination of chlorides and of those chemical elements, such as ammonia, nitrites and nitrates, which are usually looked upon as the products of bacterial life.

The German Imperial Health Office seems to be well aware that this method needs careful elaboration and abundant statistical material before it can be placed upon a firm basis, and before the interpretation of its results can be considered reliable. There are, moreover, many important collateral questions which must be solved before this point is reached. There are now published in the first volume of the *Arbeiten a. d. Kais. Gesundheitsamt*, three separate articles, extending and applying the gelatine plate method in endeavoring to get at the true signification of microörganisms in water. The first publication (p. 1) furnishes statistics of the chemical and bacteriological constituents of Berlin drinking water.

These tables point out very clearly the efficiency of filtration in removing the great majority of bacteria from the water, and in reducing the quantity of the chemical constituents. They also indicate the great variation which the number of bacteria may undergo in water derived from flowing streams and rivers. Thus the maximum number of bacteria contained in unfiltered water from the river Spree, in the month of March, was 5115, the minimum 936; in October, the maximum and minimum were respectively 8316 and 528.

In my own examinations of Potomac water, in part published elsewhere,[1] the number of bacteria would reach 3000 after heavy rains, and descend within a few weeks to about 300. In every case, the number of bacteria would grow *pari passu* with the turbidity of the water, indicating a washing into the stream, with the suspended matter, of the bacteria themselves, while the smaller number found in the settled water led me to infer the presence of a very small quantity of organic matter in solution. These facts force us not to rely upon one, or even a few examinations in estimating the average germ life of a given water, and from this deduce its healthfulness. Another fact brought out by these statistics, is the great value of Koch's method in determining the efficiency of filtration. This has been well shown by Frankland, and others. The method enables us to test, not merely the efficiency of a given filtering material or apparatus, but the length of time during which such a filter remains efficient. That this is a most important factor, is shown by the following statistics.[1] Water drawn in a Berlin kitchen, through a private filter, contained 3840 bacteria; the filter being removed, it contained only 35. A second examination furnished the same results, 4500 with the filter, 56 without it. To indicate the efficiency of sand filtration, used in Berlin, the following figures may be of interest. In July, 1884, about 75 per cent. of the bacteria were removed by filtration; in August, 80 per cent.; in September, 97 per cent.; in November, 42 per cent., etc.

Koch established, and made comparatively simple, the estimation of the number of microörganisms in water. But the signification of the number and kind of bacteria still remains to be determined. It may be safely assumed that the number of bacteria is a measure of organic contamination, and that the introduction of saprophytic bacteria into streams from polluted sources, may be taken as a broad indication that pathogenic bacteria, whenever present, will gain entrance through the same channels.

In order to see what relation subsists between the quality of drinking water, as indicated by taste, and by chemical analysis, another series of figures are published under the direction of Dr. Wolffhügel.[2] These statistics, collected from various cities in Germany and Austria, and compiled by various observers, do not indicate the perfect concordance between biological analysis and former estimation of quality which those would wish to see, who have looked upon this method as more satisfactory than chemical analysis. Moreover, in the reports from some cities, the bacteriological estimates of the water from various pumps which have been condemned as unfit for use on the evidence furnished by chemical analysis, show in the main a low percentage of bacteria when compared with others regarded as fit for drinking water. Thus, on page 556, we find the water of two condemned pumps containing, respectively, 11 and 71 bacteria in 1 c.c., while that of another, not condemned, is put down as containing 1485 bacteria in 1 c. c.

These discrepancies may, however, be only apparent, when we consider that, in but a few cases, two or three examinations of water from the same source were made. These examinations, in most cases, show a close agreement in the figures; in a few, the difference is very marked. Thus (p. 554), two examinations, made about a month apart, describe the bacteria as too numerous to be counted in the first case, and but 63 in the second.

From these statistics, it would appear that, in the majority of the sources receiving their supply either from ground water or spring water, the bacteria number less than 200 in 1 c. c., a small proportion reach the number 500 to 600, while a few go as high as 2000 to 5000. In connection with these statistics, Dr. Wolffhügel reserves for himself some general deductions, to be published later. Meanwhile, in order to swell the material on which conclusions may be based, it would be advisable for those practically interested to confine their examina-

[1] American Monthly Micr. Journ., 1886, p. 61.

[1] Arbeiten, etc., p. 562.
[2] Loc. cit., p. 546.

tions to variations in the number of germs in a few sources of drinking water, rather than examine a large number but once or twice. In this way the effect of the seasons, of rainfall and drought may be watched. Nor is the effect on the number of bacteria of a prolonged exhaustion of water in ordinary pumps to be overlooked.

In a third article,[1] two questions are approached from the experimental side: To what extent do pathogenic bacteria multiply in water? To what extent do bacteria multiply in samples of water after collection and before examination? In regard to the second question, the authors conclude that bacteria do increase in number within certain limits of temperature, and that water packed in ice shows a gradual decrease in the number of bacteria capable of development. Hence the necessity of examining water immediately after it has been collected, in order to avoid any errors. The great increase in the number of bacteria of drinking water after collection is a fact coming under the observation of all who have paid any attention to the subject. I, at first, suspected that the biologically sterile tube might not be chemically clean, and hence exposed the tube to the Bunsen flame until all organic matter was carbonized or broken up. This, however, did not prevent a few thousand bacteria from increasing to over sixty thousand within twenty-four hours. The changed conditions are such as to make all other organisms a prey to bacteria. The authors have also found that the manner in which the collecting tube is closed affects the diminution of the number when exposed to cold, so that tubes with rubber stoppers contained, on the average, less than those plugged with cotton-wool. This, without doubt, depends on the oxygen supply. Experiments on the effect of mechanical disturbance, such as might occur in the transportation of samples, led to no uniform results.

In endeavoring to solve the first question stated above, how extensively pathogenic bacteria are capable of multiplication, the authors sterilized filtered and unfiltered water from various sources, including river, well water, and water from a contaminated stream. As a preliminary experiment, a number of bacilli isolated from water were tested in this way. All actively multiplied for ten or fifteen days after being sown. This multiplication was determined at stated intervals of one to five days, on gelatine plates. Among the pathogenic microorganisms, the anthrax bacilli multiplied, in some cases, to the fifteenth day after sowing. The bacilli of typhoid fever increased in number up to the third day, then diminished. Even when the contaminated water was greatly diluted with distilled water, there was a perceptible multiplication, or, at least, a preservation of the vitality of the bacilli for at least twenty days. In well water and drinking water from the river, the increase was not so marked, but the vitality was not destroyed after the twentieth day. In distilled water they were traceable after fifteen days. Cholera bacilli exhibited the peculiar property of quite disappearing during the first days, but multiplying later to a very marked degree. The authors explain this strange fact, by assuming preliminary adaptation of the bacilli to the medium in which they are placed, by which their multiplication is somewhat retarded. The enormous multiplication of typhoid and cholera bacilli in sterilized milk, points out the importance of keeping a strict supervision over this important article of food, and the absolute necessity of boiling all milk in times of epidemics.

Experiments designed to test the struggle for existence of pathogenic bacteria in unsterilized water, failed by reason of the rapid growth of the bacteria originally present. Immediately after sowing, the cholera bacilli were by far the most numerous, but, within a day, other bacteria multiplied so enormously as to crowd them out of sight or existence.

When first undertaking to analyze water by this method, it seemed to me that if the collected water were allowed to stand at a given temperature, and the maximum number of bacteria determined which the water was capable of sustaining, we might have an indicator of the relative quantity of organic matter present. This the authors have virtually done, only in a way which must be more accurate in some respects. If the water be sterilized by heat, and only one species of microörganisms sown, the conditions would be more uniform, since different bacteria would multiply with different rapidity. In such experiments the change in the water, effected by sterilization, must be taken into consideration.

From recent investigations, M. Bolton[1] determined in water the presence of certain bacteria, which multiply very rapidly for a number of days, and quite independently of the quality of the water used as a culture medium. The addition of nutrient substances, in quantities too small to be measured, was sufficient to cause active multiplication. They found nourishment enough in water repeatedly distilled. Pathogenic bacteria, added to water, regularly decreased in number, independently of the quality of the water. He therefore concludes that the number of bacteria in a given sample does not furnish any safe basis for determining the chemical constitution, the degree of pollution, or the infectiousness. A knowledge of the various species of bacteria is a safer guide than their number, in estimating the quality of water.

Such researches aid in giving bacterial enumeration its proper place. They indicate the method to be pursued: a careful study of the biological properties, and the possible pathogenic effect of each species. The relation of bacteria to the processes in the alimentary canal is still an unexplored field. May not some of the speciesdaily introduced into the digestive organs, in the drinking water, give rise, under certain conditions, to fermentations and decompositions leading to catarrhal and other morbid changes?

Lines of research might be multiplied, if space

[1] Loc. cit., p. 455, Die Vermehrung d. Bakt. im Wasser, von Dr. Wolffhügel u. Dr. Riedel.

[1] Zeitschrift für Hygiene, I. Bd., I. Heft., Deutsche med. Wochenschr., 1886, p. 506.

permitted. They are comparable to clinical observations at the bedside, the value of which increases with the quantity. Since work of this nature is more laborious than intricate, and requires but little apparatus, its prosecution in every biological laboratory is to be highly recommended.

A LARGE CALCULUS REMOVED FROM THE BOWELS BY INFLATION.

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On Friday, December 4, 1885, Mrs. J. was taken with a severe attack of diarrhœa; after a few hours it suddenly ceased. Then followed pain in the bowels and vomiting. This condition of things continuing until the next evening, her husband called on me for some morphine. No relief being obtained from the medicine, I was requested early Sunday morning to visit her. I found her in a very prostrate condition, having slept none at all for the last two nights; and the pains occurring every few minutes, with vomiting and great tenderness of the hypogastrium on pressure. To the right and surrounding the umbilicus could be felt a tumor the size of a child's head. No nourishment had been retained in the stomach for two days; the bowels were constipated. The pulse and temperature were scarcely up to the normal standard.

Mrs. J. possesses a vigorous constitution naturally, is short in stature, quite fleshy and corpulent, is now in her fifty-ninth year, and is the mother of thirteen children, eleven of whom are now living and healthy. My diagnosis of the case was colic, with symptoms of impaction of the bowels. All medicines, excepting two doses of calomel, were rejected by the stomach. The injections of warm water returned from the bowels without any fecal matter.

The symptoms becoming aggravated by noon on the fourth day, at 2 P.M. I inflated her bowels with air, which at first passed up only a short distance; and then passed out by the rectum. Continuing the operation for twenty minutes, it began to move higher up; and in half an hour, concluding she could not bear any more, it was discontinued. About two hours from this time an enema brought away a small amount of fecal matter.

Fears being expressed by the patient of a displaced womb, an examination revealed a slight displacement forward, which being rectified she expressed herself as much relieved. Having requested some nourishment, soup was taken and retained; and no more vomiting followed. Soon after a moving in the bowels was felt by the patient; and about 5 P.M., while over the bed-pan, something passed from the bowels, striking the bottom of the vessel with great force and with a loud report. This was immediately followed by a very copious discharge from the bowels, over which the patient had no control. Over a gallon of fecal matter was discharged, and the condition of the patient was immediately changed; all symptoms of pain and vomiting came to an end. On removing the evacuations from the vessel a large calculus was found, measuring two and a half inches in length and four and a half inches in circumference, and weighing seven hundred and twenty grains. It was evident that this calculus had been the cause of the impaction of the bowels; and that it had been dislodged by the inflation.

The calculus is covered with a coating of lime, has a smooth, shining appearance like polished marble, is grayish-white, covered with black, brown, and yellow spots. It has the appearance as if there might have been adhesions on its surface. It was sawn through its centre six weeks after its discharge, since which time it has hardened considerably and assumed a more polished appearance. Near the centre is a dark spot one-third of an inch in diameter, which was quite soft—of the consistence of beeswax. Surrounding this are dark and light rings, showing layers of cholesterin, which increase in hardness toward the periphery; and finally an external coating of lime, varying from two lines to half an inch at the small end. Its fractured surface glistens like resin, and the sawdust dissolves in sulphuric ether, giving a straw-colored solution.

How and when this stone made its way into the intestines are questions not easily determined. Did it pass by the ductus communis choledochus by dilatation, or through it or the walls of the gall-bladder by ulceration? Mrs. J. has been in poor health for seven or eight years. Seven years ago she suffered a great deal from pain in the right side. During the winter of 1880 she was laid up with a remitting fever of a mild type for seven weeks; followed by a protracted convalescence. There were marked icterus and pain in the right side near the umbilicus, requiring hypodermatic injections of morphine. These symptoms gradually gave way; but the pain in the side never left entirely. There was a tender spot to the right of the umbilicus, radiating across the lower part of the abdomen, increased by exercise or exertion; but more annoying in bed than at any other time; compelling her to lie on the right side and keeping her awake most of the night. Every winter she has had light attacks of just such sickness. One year ago she had quite a severe attack, brought on by overwork. The pain was of an aching, worrying character, as though a heavy weight were pressing on her; spreading out on the abdomen, passing around to the right kidney, up toward the liver, with a great amount of gas and sourness of the stomach, often vomiting a great amount of bile. Scarcely anything remained on the stomach for several weeks, except milk and lime water. After a tedious convalescence of three or four months, a discharge per vaginam of pus mixed with blood appeared, continuing seven or eight weeks. This occurred last summer. Since then she had been slightly improving; and up to the time of the impaction of the bowels considered herself gradually getting well. At the same time she was unable to lie or turn over with comfort on the left side in bed. There was that ever-present weight and aching on the right side of the abdomen, keeping her awake at night and preventing her exercising through the day. Her diet had to be very spare. Very little meat could be borne, and vegetables and farinaceous articles in very small quantities, or

vomiting would follow. The bowels were never constipated, but inclined to be too loose. There were never any severe attacks of pain, indicating the passage of gall-stones through the ductus choledochus. The patient thinks she never had a chill, but considerable inward fever, causing her to drink a good deal of water.

Since the discharge of the calculus she has kept herself quiet, mostly in bed for several weeks; and for some time was unable to turn over in bed without help, or to move about on account of the soreness of the right side. She has improved under the influence of rest and warm fomentations, so as to be up and about. She called on me recently and said she was able to visit her neighbors, had a good appetite, good digestion, and although there is still a little soreness in the right side she feels well, can turn over in bed, lie on either side, and thinks she will soon be as well as ever.

The most probable view of the origin and cause of this calculus is that it had been forming in the gall-bladder for several years, and that during the latter stages of its growth it pressed against the pyloric end of the stomach, causing the frequent vomitings of the patient for several years past, and preventing the passage of the bile into the intestines at times, producing the jaundiced condition of the eyes and skin. If a stone an inch and a half in diameter can pass so small a passage as the ductus choledochus, as some authors are inclined to believe, surely it would have given some unmistakable signs in the way of pain, there having been no such pain to warrant such an event. It surely could not have passed during the last sickness; for no pain appeared till after the diarrhœa had stopped suddenly, as if the presence of some foreign body was blocking up the passage. Not till then did the pain and vomiting commence. Large quantities of bile attended the vomiting, which would not have happened had the calculus been engaged in the ductus choledochus, for its smooth round surface would have prevented its passage. The most probable view is, that the calculus passed through the walls of the gall-bladder by ulceration into the duodenum; and was in some way the cause of the discharge of pus last summer. It then found its way into the ilium, where it lodged till the time of impaction and the accumulation of fecal matter behind it, which was dislodged by the inflation of the bowels.

At this time, nine months since the discharge of the calculus, Mrs. J. is enjoying good health.

Plainfield, Ind., September 16, 1886.

MEDICAL PROGRESS.

Primary Tuberculosis of the Conjunctiva.—Rhein describes four cases of primary conjunctival tuberculosis, in which he succeeded in demonstrating the presence of tubercle bacilli in the diseased tissue. He was also able to show the tubercular character of the disease by the introduction of excised portions of the conjunctiva into the anterior chamber of the eyes of a rabbit. Careful examination of the lungs, larynx, etc., in all the four cases showed that their condition was normal. Swollen glands were found, but their appearance was secondary to that of the conjunctival lesion. —*Centralbl. f. d. med. Wiss.*, August 21, 1886.

The Removal of Hemorrhoids rendered Painless by the Injection of Cocaine.—Dr. J. P. Stallard, of Manchester, records in the *British Medical Journal* of September 25, 1886, the following interesting cases:

Case I.—A gentleman consulted me on June 12, 1886, for a painful swelling, saying he thought that his "seat had come down." On examination, I found a large venous pile, tense and shining, and tending to ulceration, the base of which sprang from just within the margin of the sphincter ani. With difficulty and pain, it was reduced; but, as it descended on the following day, it was decided that it would be best to tie it. The patient was a very sensitive man, and asked that chloroform might be given to him; but, thinking it was a suitable case, I decided to try the effects of cocaine. Five drops of a ten per cent. solution of hydrochlorate of cocaine were injected, by means of a hypodermatic syringe, into each side of the base of the hemorrhoid; and, after waiting five minutes, the tumor was seized with a vulsellum, transfixed with a double-threaded needle, and tied in the usual manner. A morphine suppository was placed in the rectum, and from the commencement of the operation up to complete recovery, a period of eight days, the patient did not experience the slightest pain.

Case II.—On June 17th, a young pregnant woman consulted me for a large venous pile, commencing to ulcerate, and occupying the position described in the preceding case. The same number of drops were injected, and the hemorrhoid was tied. She experienced no pain during the operation, which was attended by no evil consequences.

In both the above cases, no toxic effects were produced from the use of cocaine. The solution used in the second case had been kept for three months, and contained one grain of hydrochlorate of cocaine in a drachm.

Remarks.—By means of cocaine, operations for the relief of hemorrhoids can be rendered painless, but the effect of the drug soon passes off; and, to insure absolute freedom from pain, it is necessary to follow it up with morphine, administered in one of its many forms. By using cocaine as above described, the operation is rendered much easier, and can be accomplished by the surgeon single-handed, without the help of an assistant, who is indispensable when a general anæsthetic is employed.

Oil of Turpentine in Scrofulous Ozæna.—Malacrida (*Centralbl. f. Chir.*, July 17, 1886) reports the case of a girl ten years old, who had ozæna of long standing, which had long been under treatment in vain. Taking a suggestion from the cure of old fistulous tracts with oil of turpentine, the author used this drug locally, and gave the patient a supporting diet. Cotton tampons moistened with a few drops of the oil were introduced into the nose. As they caused considerable irritation, those subsequently used were wrapped with dry cotton. A perfect cure took place in a week. Five other cases treated by the same method are mentioned, in none of which was the cure delayed longer than a month.

The Treatment of Chronic Abscesses by Injections of an Ethereal Solution of Iodoform.—Verchère (*Rev. de Chir.*, June, 1886) reports twenty-three cases which were treated in this manner, and gives the following directions in regard to the operation: The solutions of iodoform should be of varying strength, one of five per cent. being used for large abscesses, and one of ten per cent. for small ones, while small, superficial abscesses may be filled with a saturated solution. If the skin over the abscess is not affected, the needle of a hypodermatic syringe is introduced in an oblique direction, so as to form a valvular fold; the pus is then drawn off, and the iodoform solution is injected. If, however, the skin over the abscess is quite thin, the pus is removed with an aspirator, and the opening made by the needle is sealed with collodion, after which a hypodermatic-syringe needle is inserted into the abscess cavity, and the injection is made as before. The object of these manœuvres is to prevent the ether from escaping through the puncture, as it at once tends to do on becoming volatilized. As the solution volatilizes, the iodoform is deposited over the entire inner surface of the abscess, and is slowly absorbed—so slowly in fact that the danger of poisoning by the drug is said to be very slight. The phenomena observed after an injection are, briefly, as follows: Rapid and sometimes excessive swelling results from the volatilization of the ether, but this soon subsides. If the skin over the abscess is healthy, the abscess cavity will speedily be replaced by indurated tissue, without the occurrence of any external change. If the skin is already inflamed, it will separate in a few days in the form of a yellowish slough, after which healing will occur by granulation, the resulting cicatrix being slight. The advantages alleged for this method of treatment are the perfect safety of the operation, the rapidity of the cure, the fact that the patient is not confined to his bed during the treatment, and the non-recurrence of the abscess.

Discussion on Castration.—From the report of the meeting of the St. Louis Obstetrical and Gynecological Society, published in the *St. Louis Courier of Medicine* for September, 1886, the following excerpts are taken:

Dr. Gregory. A few weeks ago, during the session of the American Medical Association, a physician brought his wife to this city; she is his second wife, a handsome young woman, not more than thirty years of age. She has had epilepsy for some time past—several years, and she has had one child. She has some ovarian trouble. Her husband insisted upon a laparotomy as the only thing that would cure her. She had got the consent of her father and mother, and fully made up her mind to have the operation performed, and it was done. He was in my office on Monday, and told me that he was about to go home; that the operation had been performed, and his wife had had no paroxysms since. Evidently this is the popular feeling now. I wonder that this thing does not get into our asylums—into the ordinary insane asylums. I wonder that men are not treated in a similar way. I don't see, if mania, or mental conditions approximating mania, are cured in the female by this operation, why castration should not be resorted to to cure the same class of troubles in the male. I don't know whether men will be as ready to submit to operation as women, but I don't see why reasoning from analogy does not lead us to the same conclusions.

Dr. Boisliniere. In Central Asia, little girls are spayed a short while before the period of menstruation; and they are said to make very useful house servants, and it is surprising how little importance they attach to this operation. They do not seem to consider it a dangerous operation at all. The idea which Dr. Gregory has advanced is, I think, an original one, and there is probably a great deal in it, but I think it would be difficult to popularize the idea among men.

Dr. Papin. There is a diseased person called the "old maid." A woman menstruates about thirty years of her life. Her social position, her surroundings, warrant her in wishing that she may, as her companions do, settle in life—in other words, marry. For some cause or other she never marries. Responsibilities are thrown upon her shoulders that prevent it, or she is disappointed in a love affair, or other causes prevent her from marrying. Now she will continue to menstruate from month to month, and from year to year, until the continued and never-resting functions of these organs finally attack her nervous system, and she becomes irritable. She is, in other words, an old maid. She has become peevish, fault-finding, and annoying. Now I would like to know whether it would not be proper to perform this surgical operation upon these persons?

Hydronaphthol.—Dr. Justus Wolff asserts that E. Merck's statement that betanaphthol and hydronaphthol are identical, is a mistake, which may result in the most serious consequences if betanaphthol be used instead of hydronaphthol, "as the first one is a most dangerous and deadly poison, whilst the latter is an excellent, absolutely reliable, and harmless antiseptic." The poisonous character of betanaphthol has been established a long time ago by such authorities as Kaposi, Neisser, and Piffard, and lately by Max Schwarz, while Dr. G. R. Fowler, Dr. Lawrence Wolff, and many others have proved hydronaphthol to be non-poisonous and a most effective antiseptic. Hydronaphthol is distinguished from betanaphthol, not only by its physiological action, but also by distinct chemical reactions and by its chemical constitution, as it possesses certainly more hydrogen in the molecule than betanaphthol. Of the several distinguishing chemical reactions, the following may be given as an example: If from a diluted iron perchloride solution two drops are added to an alcoholic betanaphthol solution, it becomes of a bright green color, whilst the same proportion of an alcoholic hydronaphthol solution of the same strength becomes dark yellowish-brown by addition of the same proportion of iron perchloride solution. Other reactions are also different, and the melting-points obtained by most careful determinations are for hydronaphthol 117° C., and for betanaphthol 122° C. These and other facts satisfy the author that hydronaphthol is distinct from the poisonous compound which is known as betanaphthol, and that it is not alphanaphthol nor a mixture of the two last named, and does not contain any of either. —*Druggists' Circular*, September, 1886.

An Unrecorded Danger from Continued Large Doses of Iron.—The preparations which Dr. J. Strahan has found to cause symptoms of obstruction are as

follows, namely: Ringer's pill of 5 grains of dried sulphate of iron = 9 grains of ordinary sulphate; half drachm and whole drachm doses of tincture; mistura ferri composita, P. B.; made as strong as to contain 8 or 10 grains of sulphate of iron and carbonate of potash in each dose. Any of these, if given three times, or even twice, daily, for from one to two weeks, and if natural or artificial diarrhœa do not in the meantime wash out the quantities of insoluble sulphide, will cause severe colic and constipation, which morphine and turpentine stupes seem unable even to alleviate, and which, it seemed to him, would continue indefinitely, or till death, if not removed by a smart saline purge, or other means. He has seen twenty-four hours of rhythmic agonizing pain, very like labor, with nearly constant vomiting, no sleep or ease, after a grain of morphine by the mouth, the temperature rising to 101° Fahr., and great depression of all the powers of life, from a couple of weeks' course of Ringer's pill, which had done immense good to the system at large. This has not occurred once only, but dozens of times, so that he now expects it, and provides against it. As soon as ever a large dose of any saline—he prefers an ounce of sulphate of magnesia—has well acted, all symptoms rapidly disappear. At this time, and for twenty-four hours after, the stools seemed composed half of dirty water and half of black sand. He thinks this latter fact explains the pathology of the matter. In fact, it is a real obstruction—an acute one, too—by quantities of insoluble sulphide of iron. The quantity of this black sand, which comes away when severe constipation and colic have occurred, is surprising. It seems to be much more in quantity than the whole iron ingested, although the stools have been jet black all along, through excreting the sulphide. So, it seems to him, it must lodge somewhere; perhaps in the cæcum and appendix. Then when the iron begins to sicken the patient (gastric catarrh), the sulphide, he supposes, concretes by mucus, and forms an obstruction which brings matters to a crisis. The length of time that a patient can take large doses of iron, depends on the state of the bowels; if they be kept, or remain, slightly loose, he does not suffer at all; if he becomes constipated, the iron soon sickens, and the horrible pains begin; if he were to take a smart saline purge once a week, he believes he could go on indefinitely. The saline gives the quickest relief, because it produces such a vast exosmosis of water from the intestinal wall at all points, as to dissolve the mucus which binds the sand, and then washes it out. In extreme constipation, it dissolves fecal lumps in the same way, except when the masses are enormous. It is thus the best purgative where there is a stricture in the bowels, with dilatation above, as it melts the feces into a fluid, when they can run through the narrow part.

Another great advantage the salines have, is that they cause no pain, no griping. A teaspoonful of Epsom salts every two or three hours will put an end to many a case of fecal obstruction in old people, and that without pain, where croton oil, and drachm doses of jalap, have only given rise to unendurable pain and collapse. —*British Medical Journal*, September 18, 1886.

POTASSIUM IODIDE IN DIPHTHERIA.—STEPP maintains that iodine exerts a direct curative influence upon diphtheria, and that its continued exhibition under proper restrictions is entirely harmless. It is administered as iodide of potassium with, occasionally, the addition of the tincture of iodine. For the first three years of life a two to four per cent. solution is used; for later periods, four to ten per cent.; the dose recommended is one teaspoonful hourly. The author reports cases in which the method described has been employed with advantage.—*Centralbl. f. d. gesammte Therapie*, September, 1886.

NATURE OF COBRA VENOM.—In an article in *The Journal of Physiology* for September, 1886, DR. R. WOLFENDEN presents the following conclusions:

1. That its toxicity is not due to any bacillus, bacterium, or living organism.

2. It is not due to any alkaloid.

3. It is not due to any hypothetical "cobric acid."

4. It is wholly and solely due to the proteid constituents of the venom.

The proteid constituents are

1. Globulin, which is always present, and probably kills by interference with the respiratory mechanism (asphyxia), and without paralysis—causing local inflammation, but not of great intensity, compared with daboia.

2. An albumin resembling acid albumin, which is precipitated along with globulin by saturation, and which is in some degree dialyzable. This proteid probably acts on the respiratory apparatus chiefly, like globulin, but less intensely.

3. An albumin which is precipitated by Na_2SO_4 out of the magnesic filtrate, and which is serum albumin. This is also toxic, and produces a kind of ascending paralysis with fatal termination, by suppression of the respiratory function from probable paralysis of the muscles concerned in respiration.

4. Traces in some specimens of hemialbumose, and questionable traces of peptone. I regard these as accidental, and probably due to the length of time the poison has been kept.

ALIMENTATION BY THE VAGINA.—DR. J. N. LOVE (*Weekly Medical Review*, July 17, 1886) concludes an interesting paper upon alimentation by the following remarks on the vagina as a channel through which, in certain cases, an invalid may be fed:

1. In cases which demand artificial alimentation where the conditions will permit, the vagina may be utilized to supplement feeding by the rectum.

2. In some instances disease of the alimentary canal in its entirety precludes feeding by either the stomach or the rectum; in such cases the vagina may be utilized to practical advantage.

3. That whether the vagina or rectum be used for purposes, of feeding, the materials should be as thoroughly digested previous to using as possible; the milk albumen or beef fibre completely peptonized, and all the starchy matters changed into dextrose or glucose.

4. In many instances the vagina may be utilized for purposes of general medication and stimulation, and the stomach saved for the important one of feeding.

5. In many cases vaginal feeding, stimulation, and medication is beneficial; in many others it is a potent means for saving and prolonging life.

6. In both rectal and vaginal feeding the same gentle care is necessary, and one advantage possessed by the

latter over the former, is that the vagina is much the more tolerant of intrusion, and can be utilized for an almost unlimited time without revolting.

Hydrogen Dioxide in Diphtheria.—Hofmokl records the use of hydrogen dioxide in fifty cases of diphtheria, and holds that the drug is of value in this disease, though by no means a specific.

Three parts of pure glycerine are added to two hundred parts of the two per cent. aqueous solution of the dioxide, and the mixture is used both for inhalations with a steam atomizer and internally. In the latter case one teaspoonful is given at intervals of from one to two hours. Considerable salivation results from this treatment, and the membranes are expelled usually on the third or fourth day. Neither the reproduction of the exudate nor the downward extension of the membrane is prevented, but the general condition and appetite are notably improved.—*Centralbl. f. Chirurgie*, August 21, 1886.

The Salts of Copper in Scrofulosis.—Prof. Du Molin, of Gante, in the course of experiments upon the toxic action of the salts of copper on a dog which suffered from facial impetiginous eczema, noted its cure, in the course of six weeks, with the progressing doses of from one milligramme to one gramme a day. Through analogy he applied the same treatment to the eczema impetiginosa of children, obtaining success in twenty-five cases. Extending the use of the same medication to all other scrofulous manifestations, he met with equal success, except in cases of *keratitis*, which have not always responded to the treatment. Cupric intoxication may be avoided by the use of moderate and methodically increasing doses.—*Western Medical Reporter*, Aug. 1886.

Power of an Operator Over a Patient under the Influence of Nitrous Oxide.—Dr. W. C. Bunker, of Oregon, Ill., writes as follows to *Dental Cosmos* of October, 1886:

I have been using nitrous oxide gas in my practice for a number of years. For the first two or three years I had but indifferent success, especially when called upon to remove the wisdom-teeth or second molars. To insure the mouth being open, I used to employ a rubber gag, sometimes substituting for it a large cork with a string attached. In a majority of cases, when the gag was taken out, the jaws closed somewhat and remained rigid, no proper amount of force sufficing to open the mouth until the effect of the gas was nearly spent. I finally declined to administer gas for extracting teeth back of the first molars.

Requiring the extraction of a tooth from my own mouth, I went to a brother dentist and had the gas administered. While taking it, and while under its effects, I was perfectly conscious; heard every word said, but was powerless to move a muscle. I knew when the inhaler was removed and the forceps taken up and adjusted, but felt no pain. The tooth was broken off, and two more ineffectual efforts were made to extract it. Still there was no pain. At this instant I regained control of myself, retaining a knowledge of all that had transpired.

This experience impressed me with the conviction that if patients heard and understood, they could be made to obey. It had been a habit with me to test the condition of my patients during the inhalation of the gas by requesting them to raise the left arm. They usually responded, some continuing to raise and lower the arm until the effect of the gas passed off, seeming to be impressed with the idea that they must do so.

The next occasion I had to administer gas I made the usual examination of the mouth, and, after learning which teeth I was required to remove, I turned abruptly to the patient and said, "If, while you are under the influence of the gas, you hear me request you to open your mouth, do so. You can, if you understand now that it will be necessary." I said nothing about raising his arm, but just as I thought he had inhaled enough gas, I said, "Raise your left arm," and was surprised to see that, instead of doing so, he promptly opened his mouth wide. As his breathing indicated that he had enough gas, I dropped the inhaler and extracted the teeth. After he regained consciousness, I said, "Did you hear me ask you to raise your arm?" He said, "I heard you tell me something, and as you had charged me to open my mouth if asked, I thought that was what you wanted."

I have taken advantage of this experience ever since—some three years—and have yet to meet the first failure. After charging a patient to respond by opening the mouth when told, I proceed to administer the gas, and just before he passes under its influence I say, "Remember and open your mouth when I tell you to." Thus the last thing the patient thinks of is opening his mouth, and almost invariably it is the first thing he does. I have tried the command without previous instruction, and failed to obtain a response. I think this suggestion worthy of investigation by those who use gas.

Tolerance of Narceine by Infants.—Laborde, after considerable experience with the drug, reports that for use in many diseases of children it is far superor to the preparations of morphine. It induces sleep, and notably diminishes bronchial secretion. He has found its use very advantageous in whooping-cough, and in nocturnal coughs in general. As an analgesic, it has not the power of morphine. It is best administered in syrup or in suppositories.—*Journal de Médecine de Paris*, July 25, 1886.

Paralysis depending upon Idea.—Dr. C. W. Suckling writes as follows to the *Lancet* of September 18, 1886:

In the *Birmingham Medical Review* for June, 1885, I published an account of a boy who had suffered from paralysis of one leg for two years, and whom I was able to cure immediately after making the diagnosis of paralysis depending upon idea. Since then I have met with three other cases, two of which were men. In one case there was complete anæsthesia of the hand; in another, hemianalgesia with localized and severe headache. In the four cases I have now seen, an accident occasioning slight injury was the exciting cause in each. All four cases were rapidly cured. Dr. Russell Reynolds, I believe, first described paralysis depending upon imagination. There is no malingering in these cases, but the patients are firmly convinced that they are suffering from paralysis. If the confidence of the patient be gained, an immediate recovery follows when he is told that he will be well immediately, the idea

being got rid of. In making the diagnosis, it is important to bear in mind the two classes of people in whom functional nervous disorders are met with—the neurotic and the hysterical; the features of which have been so graphically described by Dr. Clifford Allbutt in the Gulstonian Lectures for 1884. It is the neurotic that is apt to be affected by these paralyses depending upon idea, and it is these cases that are instantly cured when the diagnosis is made. The hysterical patient is cured with difficulty, and frequently relapses; the neurotic does not relapse. The neurotic individual is vivacious, good-tempered, unselfish, intelligent, active, and industrious, anxious to be cured, and grateful for recovery. The hysterical individual is listless, apathetic, lazy, selfish, with characteristic expression, not usually anxious to get well or thankful for recovery. The following is the fourth of these cases of paralysis depending upon idea that I have met with during the last twelve months.

Sarah F., a widow, aged forty-six, was sent to the Queen's Hospital, to be admitted under my care, by Dr. Middleton, of Harborne, on the fifteenth of March last, and was discharged, well, on March 28th. She has led a very industrious life, having supported her five children by needlework since her husband's death ten years ago. On October 9, 1885, she tumbled downstairs, falling down twenty-one steps on to her back. She was much hurt and "dazed," and very much frightened, thinking every bone in her body was broken. She walked about after the accident for a day or two, but suffered from pains in the back, down the legs, and round the body: these pains were intermittent, very severe, and lasted altogether three weeks. Two days after the accident she took to her bed, and a day or two later found that she was paralyzed in both her legs, and had lost all feeling in them. Since the accident she had suffered from constant headache and backache. Upon examining her, I found that she had a little power over the legs, but very little. Slight ankle-clonus could be elicited on the left side. The plantar and abdominal reflexes were lost, but the knee-jerk was well marked. There was complete analgesia, and thermal anæsthesia in both legs up to the knees. She was unable to localize tactile sensations below the knees, the anæsthesia not being complete. When touched with a sharp-pointed instrument, she said she felt as if she were being pushed. Muscular sense was unaffected. There was superficial tenderness over the lower dorsal spines, but no pain on firm pressure, or on percussion, and no irregularity of the spine. The bladder and rectum were unaffected, and I was informed by Dr. Middleton that she never lost control over the bladder, nor had any sign of bedsore during her illness. There was no œdema of the legs, no alteration of temperature, and no change in the color or aspect of the skin or nails. In fact, there were absolutely no trophic changes whatever. The response of the muscles to faradization of their nerves was normal, but there was considerable electrical anæsthesia. In summing up the symptoms present, I, of course, observed their incongruity, if we supposed the case to be one of myelitis, or, in fact, as due to any organic lesion. If the anæsthesia were due to actual lesion of the gray matter, how could the bladder and rectum escape? How was it that there was no sign of bedsore, no œdema, or other trophic change, such as muscular wasting? I diagnosticated the case immediately as being purely functional, and, the woman being of the neurotic type, as paraplegia depending upon idea. I at once acted upon this diagnosis, and told the patient that I should give her the battery, which I said would at once remove the loss of sensation, and enable her to move her legs as well as she ever did. She was delighted to hear this, and, after a minute's faradization, sensation was completely restored, and she had full command over her legs. I then told her that on my next visit I should expect to see her walking about the ward, for I was sure that she would be able to do so. I instructed Mr. Whittendale, my house-physician, to see that she got up after I left, and to apply the faradic current whenever she displayed any hesitancy. On my next visit, two days later, I found her up, and able to walk and run about the ward perfectly well. She was quite delighted at her recovery, and had been most industrious with her needle since getting up. She expressed deep gratitude, and hoped to be able to repay our kindness. I may add that I saw my patient on the fourteenth of the present month (September), and she was remaining quite well.

How was the cure effected in this case? Undoubtedly, I think, it was by the mental state of faith or expectation, or both, on the patient's part. She fully believed what I told her, and thus I was able to remove the idea she had that she was paralyzed. The essential thing, then, in these cases, is to make a correct diagnosis, and then the patients can safely, and with success, be told that they will quickly recover. Now, had this been a hysterical woman, I should in all probability have failed to cure her, or, at any rate, the cure would have been more tedious. I recently had a woman under my care, suffering from locomotor ataxy with hysterical anæsthesia. For two years I did all I could to cure the anæsthesia, and failed; but, when she left the infirmary, she applied leeches to her legs, and returned with the anæsthesia gone. Isolation, so useful in hysterical cases, is not needed in these.

In the same ward with my case of ideal paralysis, there was a young woman suffering from hysterical neuralgia, and the contrast between the two patients was very marked. The hysterical woman was listless and apathetic, did not manifest any desire to be cured, and would scarcely allow that she was any better than when admitted. When told that she was well enough to go back to her duties as a teacher, she seemed disappointed, and said that she did not intend to begin work again for some months. The neurotic woman, on the contrary, wanted to leave the hospital immediately she could walk. The hysterical woman was observed to be always sitting opposite the neurotic woman, contemplating her with her hands idly folded in her lap, watching the other busily working.

Such cases as these illustrate the enormous influence of the mind over the body. It is with these cases that the so-called faith-healers work pretended miracles. What an opportunity for a faith-healer my case would have afforded! Just as the mind has an enormous influence in causing disorders of sensation, of motion, and also of the organic functions, so also its influence can be used as a practical remedy in disease. As Dr. Wilks has well observed, "the practice of medicine is not only one of physic, but of psychology also."

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SATURDAY, OCTOBER 9, 1886.

THE REPORT OF THE AMERICAN CHOLERA COMMISSIONER.

DR. E. O. SHAKESPEARE, of this city, commissioned last year by the President to investigate cholera in Europe and India, whose return to America after a year's absence we mentioned in our last issue, is busily engaged in the preparation of his official report, which we understand will be placed before Congress by the President, and will be published by the Government as a volume of considerable size.

We learn that the investigations of Dr. Shakespeare, having comprised anatomical and bacteriological studies, as well as those relating directly to hygiene, climatology, etc., have led him to conclusions concerning the nature and spread of cholera, which, in the main, accord with those enunciated by the German and Belgian Cholera Commissions. Dr. Shakespeare regards the comma-bacillus of Koch as a diagnostic sign of the greatest practical value for the early recognition of the presence of true Asiatic cholera. Irrespective of what may prove to be the real etiological relations of this microörganism to cholera, he looks upon this discovery of the German Commission as of incalculable practical importance to health authorities, of both local and general governments, whose duty it is to guard the people from the destruction of life and trade which usually follows an invasion of this disease. As to the pathogenic properties of the comma-bacillus, Dr. Shakespeare has less positive opinions. While he thinks it probable that this microörganism may also be the active cause of cholera, he feels that the proof is not yet absolute and fully convincing.

It is, therefore, evident that the conclusions of the American Commissioner are in opposition to those published by the English Commission, and in conflict with the notions advanced recently by Mr. Cuningham, the late Surgeon-General and Sanitary Commissioner with the Government of India, in his book entitled *Cholera: What can the State do to Prevent It?* Indeed, we are informed that, even in India, not one physician in fifty shares the opinions published by the late Surgeon-General.

In this connection it may be mentioned that D. D. Cunningham, of Calcutta, the well known Indian pathologist and microscopist, has, as the result of his latest laboratory work, fully accepted the claims of Koch concerning the diagnostic characteristics and value of the comma-bacillus. It will be remembreed that Dr. D. D. Cunningham was originally heartily in accord with Klein and Surgeon-General Cuningham in their contradictions of the conclusions of the German Commission.

Apropos of this important change of opinion, the rumor has reached us that the chief of the English Commission, Dr. Klein, has also found reason to modify greatly his views concerning the diagnostic value of the comma-bacillus of Koch.

INTESTINAL OCCLUSION BY GALL-STONES.

IT happens occasionally that a gall-stone of large size reaches the intestine, and, sticking fast in some part of its course, produces a fatal obstruction. The condition is not common and WISING, in the *Nordiskt Mediciniskt Archiv*, xvii. No. 16, has supplemented the report of a case by an analysis of all the recorded instances, fifty-one in number.* Of these, thirty-eight ended fatally. In a majority of the cases the stone escaped through a perforation existing between the gall-bladder and duodenum; but in four, at least, it would appear that the calculus passed through the bile passages, as no abnormal communication existed. The situation of the occlusion is rarely in the duodenum, more commonly in the jejunum or ileum, particularly the lower portion of the latter.

The attack is not often preceded by biliary colic, but usually sets in suddenly with pain in abdomen, vomiting, and the other symptoms of acute obstruction. In only five of the cases was a tumor palpable, and it is not clear whether, in every instance, this was the gall-stone. The treatment is that of ileus from other causes. Laparotomy has been performed in four cases, all of which were fatal. Washing out the stomach, as suggested by Kussmaul, might be specially serviceable in this form of occlusion, particularly if the obstruction was high up in the intestine.

The case reported in this number of THE NEWS, by DR. EVANS, is in many respects remarkable.

The calculus was of unusual size—one of the largest on record. The onset of the attack of ileus and course of the symptoms presented nothing special, and gave no clew to the nature of the obstruction. The tumor in the umbilical region was, no doubt, formed by the coil of distended intestine. The treatment pursued was extremely rational and eminently successful. We know of an unrecorded instance in which the patient after presenting the symptoms of ileus for several days passed a gall-stone nearly two inches in length. In this case the propriety of laparotomy was discussed the evening before the discharge of the calculus.

Large solitary gall-stones are not very rare, and we should say that only a limited number of them give rise to any trouble. They may exist in a normal-looking gall-bladder, but they tend in time to produce an inflammation which terminates either in an adhesive cholecystitis with obliteration of the sac, or in ulceration into a contiguous viscus, usually the duodenum or colon. The size and distensibility of the bile-ducts varies in different persons, but it is difficult to conceive that a gall-stone capable of producing intestinal obstruction, could pass the cystic and common ducts. Von Schweppel places the limit of size at one centimetre in diameter, but it is well known that permanent obstruction of the duct may be produced by much smaller calculi, and, on the other hand, the cases of Berkeley Hill and Le Gros Clark, quoted by Wising, leave no room for doubt that sufficient dilatation of the bile passages may occur to permit of the exit of a stone too large to pass through the bowel without inducing symptoms of obstruction.

FRACTURE OF THE PATELLA AND MALGAIGNE'S HOOKS.

In The Medical News of March 27, 1886, we considered the claims of Lister's method of opening the knee-joint and suturing the fragments of the fractured patella, and expressed our opinion that the simple methods which have proved so efficient in the practice of most American surgeons are to be preferred. In doing this, we made a passing allusion to the use of Malgaigne's hooks, or to one of the ingenious modifications of them made by Levis and Morton.

In regard to these instruments there is still—as there always has been—a diversity of opinion. Some surgeons praise them highly, while others characterize them as diabolical. In making this statement, it is proper to remark that the former are usually those who have given the hooks a fair trial, and the latter those who have not used them much. To the number of the supporters of the method suggested by Malgaigne, is now to be added Mr. Frederick Treves, of London.

In a short paper in the *British Medical Journal* for July 24, 1886, Treves states that he has used Malgaigne's hooks in all the cases of fracture of the patella which he has treated in the London Hospital during the twelve months preceding his report. Unfortunately, he does not give the exact number of cases. The results, he says, have been most satisfactory, judging from what can be observed in so short a time. This method has not had any unpleasant features. There has been no pain worth mentioning, no inflammatory reaction, no suppuration around the punctures, and no trouble in the joint. He adopts certain precautions to prevent these conditions. He washes the part concerned with carbolic acid solution, punctures the skin at the proper points with a tenotome, the two upper punctures opening the joint and permitting the escape of any accumulated fluid, after which the hooks are applied—the lower ones first—connected, and screwed up. The hooks are kept immersed in carbolic acid solution before being used, and, when they are inserted, the punctures are covered with powdered iodoform. The disposition of the upper fragment to ride is combated by passing a tape over the upper hooks and under the knee. The screw of the instrument is kept clear of the powder, and well oiled.

Mr. Treves operates without an anæsthetic, but under the spray, and he places the limb on a straight posterior splint before inserting the hooks, and elevates it after the operation. He thinks it important to keep the knee exposed to the air after inserting the hooks. The reason he gives for this is, that he believes a wound of the lower limb which is covered with dressings and bedclothes, is kept in a vitiated atmosphere, to its detriment. We think his practice is commendable, although we are inclined to attribute the benefit of exposure to the air more to its cooling effect than to anything which the atmosphere may or may not contain. Cumbersome dressings are a very frequent cause of distress and damage to patients, and anything which will prevent their application may be welcomed as an improvement in the practice of surgery.

This contribution of Mr. Treves to the subject of the treatment of fractures of the patella is one of decided value, and should encourage surgeons to renewed employment of the hooks of Malgaigne, or of other appliances similar in principle.

Multiplication of ideas is a good thing. With every year a taste for reading spreads among the people. Every class is provided for; no mind so immature, no child so young, but is offered its special aliment. Reading is made handy: the daily paper is presented to us in the street car; ten cents' worth of romance confronts us at every railway station. Consequently there arises among men and

women the habit of reading while in motion, which is most injurious; among children the habit of using their eyes by artificial light, after the lessons, which themselves should not be permitted at night, are got through with; consequently there is an ever-augmenting army of adults and toddlers wearing the livery of over-civilization, spectacles. As if with deliberate intent to aggravate this calamity, there is, moreover, an increasing disposition to use fine type. A large proportion of the cheap railway literature comes in characters which a paternal censorship would never allow to go into print. And worse than all, the children are brought up on it; some of the best and most widely read juvenile papers of the day are in such type as no mother should allow to enter her home. But, before parents can be expected to see this danger, the family physician must warn them.

The evil to which we have referred is not only a result of the use of fine type, but may be caused by the employment of type of improper shape, or by insufficient spacing between words and lines. Motives of economy induce the publishers of the cheaper forms of literature to reduce to the minimum the amount of unutilized space on the page—a result usually attained by the use of long and narrow type and the reduction in spaces just indicated.

The difference in legibility in two fonts of type of the same height but of different widths is surprising, and is always in favor of the broader letter. One may readily convince himself of this fact by holding a page of ordinary printed matter at the utmost limit of legibility. If now the page be rotated through an angle of forty-five degrees on its vertical axis it will be found that, from the resultant narrowing of the letters, the page becomes entirely illegible. If, on the other hand, it be rotated to the same extent on its horizontal axis, the legibility of the text will be found to be but slightly, if at all, impaired.

The reader interested in hygienic typography may be referred to the admirable essay by Javal in the 27th volume of the *Revue Scientifique*.

The question of a proper street-paving means more, involves more, and is of more importance than is here at least generally thought. It is not merely the comfort of those who drive in carriages, whether for pleasure or on duty, that is concerned. There are questions of scarcely-to-be-calculated savings of time, money, and strength, of the general cleanliness, and, therefore, of the general health, to be considered. How great a factor in the breeding, and then in the carrying, of disease-germs, and of a thousand dangerous fungi, the accumulated decaying dust and filth of our streets may be, we do not accurately know. The hopeless impossibility of cleaning with thoroughness hundreds of miles of streets paved as barbarously as ours are grows daily more evident.

As a matter of economy to horse owners, a class into which of necessity many physicians enter, a better pavement than either "Belgian blocks" or asphalt—we do not speak of the "cobble" relics of the stone age which disgrace us—is greatly to be desired. Asphalt fulfils many of the requirements, but, unless diligently swept and tended, and gravelled daily, as is done in London, it becomes a most dangerous horse-trap in wet weather. An improved pavement has been tried recently in Wheeling and other cities, and experiments are now being made with it in Chicago and Cleveland. It is composed of wedge-shaped fire-bricks set in an arch on a foundation of sand and gravel, with a top coating of pitch and sand, and its cost is, including material, but eighty-three cents per square yard. This pavement is claimed to be firm, clean, and smooth; to be water-tight; to have great power to resist pressure, owing to the combination of arch and wedge in laying; and to afford an unequalled foothold for horses in all weathers, and on all grades. In addition to all these advantages, it is noiseless, durable, and cheap.

Here, if all that is said be true, is something looking like the ideal street roadway. The experiment on some of our smaller streets might easily be tried, and perhaps some day, if we are not too supine to desire better than the bad we now have, our reproach may be removed. At present, Philadelphia, unlike a warmer place, is not even paved with good intentions.

We referred some time ago to the very favorable reports by Huchard on the prolonged use of iodide of sodium in angina pectoris. In the *Revue de Médecine*, of August 10, 1886, Laschkevitch records four cases in which excellent results followed the administration of cocaine in doses of one-half to one-third of a grain, three times a day. The attacks appear to have been relieved very quickly, though scarcely with the rapidity which characterizes the action of amyl nitrite. A combination of these remedies might prove more serviceable than either of them alone.

SOCIETY PROCEEDINGS.

THE AMERICAN GYNECOLOGICAL SOCIETY.

Eleventh Annual Meeting, held in the Hall of the Johns Hopkins University, Baltimore, Md., September 21, 22, and 23, 1886.

(Concluded from page 390.)

Thursday, September 23d.—Third Day.

Morning Session.

Dr. W. H. Baker, of Boston, read a paper on

ELECTROLYSIS IN GYNECOLOGICAL SURGERY.

The speaker referred more particularly to the use of electrolysis in cases of fibroid tumor. He laid down the

following rules for the performance of the operation: It should not be employed within a week before or after menstruation. An anæsthetic should be administered. It is better to use electrolytic needles for both the positive and negative poles. The operator should be absolutely sure of the cleanliness of his needles. The needle should be deeply buried in the tumor, in order that the current shall be insulated from the parts outside of the growth. The insertion of the needle should be made at the most prominent part of the growth, whether in the vagina or in the abdominal wall. The needles should not be too nearly approximated. If both needles are properly placed, the position of the poles makes no difference; the circuit being completed, the number of cells should be gradually increased from four to twenty or thirty (a more exact means of determining the strength of the current would be the galvanometer, but this had not given him accurate results); the length of time during which the application is continued should be from ten to twenty minutes, and should be determined by the character of the pulse. When the pulse becomes slower and weaker than normal, the number of cells should be diminished or the current discontinued. The current should be diminished gradually, and the wires should be disconnected at the battery before the needles are removed. The application should not be made at the surgeon's office. After the application the patient is to be put to bed, where she is to remain for one week. With such precautions, the speaker had never seen shock after the operation. A single treatment is often all that is necessary. He had never found it necessary to make more than three applications, and the latter number in only one case. There should be an interval of at least from one to three months between each application.

The use of electrolysis is also of service in the treatment of inflammatory effusions. The following case was related. Mrs. X., aged twenty-eight, married, the mother of one child three years old. The present trouble had existed since the birth of the child. Diagnosis of chronic perimetritis was made. The effusion was most marked on the left side behind the uterus. For six weeks ordinary treatment was given without much benefit. For the next two months the treatment consisted of hot water injections, applications of iodine, and the use of the galvanic current, with the positive pole in the posterior cul-de-sac and the negative pole over the epigastrium, using as many cells as possible. This was used every other day. This caused a decrease of the sensitiveness, but did not diminish the size of the effusion. At the end of this time, the positive electrolytic needle was inserted into the mass, and the negative sponge was pressed above the pubes. A current from eighteen cells was applied for ten minutes. At the end of a month scarcely a trace of the effusion could be felt. Before resorting to electrolytic puncture, the application of the current as first employed in this case, should be tried, as it does not require an anæsthetic and avoids the slight risk which accompanies even small wounds.

The author presented the following conclusions:

1. Electrolysis is a useful agent in the treatment of certain cases of fibroid tumors of the uterine walls and of chronic circumscribed periuterine effusion.

2. When applied to fibroid tumors of the uterus, electropuncture is a most reasonable and efficient method.

3. In the treatment of fibroid tumors by this agency, it is unnecessary to apply it often.

4. Cases of perimetric effusion to be treated by this method, should be selected with care in reference to the absence of all acute symptoms.

Dr. James R. Chadwick, of Boston, had tried electrolysis in one case of fibroid tumor, introducing the needle through the abdominal wall. This caused a smart attack of peritonitis. During the following year, there was no decrease in the size of the tumor. A few weeks later he was called in consultation to see a case which had an enormous pelvic abscess as the result of electrolysis. This deterred him from continuing the treatment further.

Dr. George J. Englemann, of St. Louis, said that by puncturing through the vagina, and, if possible, through the tissue of the uterus, we avoid the dangers of inflammation which accompany abdominal puncture. The same results can be accomplished without anæsthesia, and with less danger, by introducing one electrode in the diseased tissue and concentrating the total effect upon that electrode, by using a large electrode in connection with the other pole.

Dr. James B. Hunter, of New York, remarked that his experience with this method of treatment had been limited, but he could not say that he had seen one case of fibroid tumor permanently relieved by electrolysis. In one case in which it was freely used by Dr. Freeman and himself, he had subsequently operated and removed the tumor by hysterectomy, the patient making a good recovery. He could find no evidence of the effect of the current on the tissue of the fibroid.

Dr. Matthew D. Mann, of Buffalo, had employed this agent in one case, plunging one needle into the tumor from behind through Douglas's cul-de-sac, with a sponge electrode over the tumor on the outside. The current was kept up fifteen minutes. Six applications were employed. The size of the tumor was much diminished, and the tenderness and pain were lessened. The patient is now able to attend to her duties.

Dr. James B. Hunter, of New York, then made some remarks on

PERSISTENT PAIN AFTER ABDOMINAL SECTION.

Abdominal section is, as a rule, performed for pain, and if this still persists, one of the objects of the operation has not been accomplished. Pain before operation may be due to various causes. It may be located in the ovaries, when it will be increased by menstruation. Disease of the tubes is a cause of pain in a large number of cases. The pain of peritonitis is of great importance. Acute peritonitis may be limited to the region of the ovaries and tubes, and the pain caused by it may be periodical in character. The presence of adhesions interfering with the mobility of the intestines and other organs, is a frequent cause of pain. A severe form of pain may also be caused by displacements of the uterus.

Abdominal section is performed for the relief of pain, and the organ at fault is successfully removed, and the patient recovers, but the pain continues. If there is no marked relief at the expiration of twelve or eighteen months, if the patient has been favorably situated, the

operation may be pronounced a failure so far as the patient is concerned. Such pain may be due to former peritonitis, to peritonitis following the operation, or to some defect in the abdominal wall.

Many of the cases which have been cured of diseases endangering life still suffer pain. Peritonitis following the operation is a cause of pain in a certain number of instances. A slight amount of peritonitis often occurs after abdominal section, and it may leave some slight adhesions interfering with the mobility of the viscera. Inflammation in the region of the stump often causes its attachment to the abdominal wall, and thus causes pain. Sometimes the uterus is fixed by inflammation, and the distention of the bladder causes pain. Adhesions of the intestine may also cause pain. Pain may result from defective union of the abdominal incision allowing a ventral hernia. Pain in the cicatrix may occur, as in other situations.

In the way of prophylaxis, the utmost precaution should be taken to prevent the development of peritonitis: especial care should be taken to do no violence to the intestines; antiseptic precautions should be adopted; the stump should be tied with aseptic silk. The early and judicious use of drainage and irrigation will go far toward preventing inflammation. The cold coil with antipyrin should be resorted to, if there are any indications of peritonitis.

In the treatment of the pain, blisters, vaginal injections, and the use of iodine may be resorted to. The internal use of opium is usually demanded. Such treatment can, however, scarcely be expected to cure the pain. Rest in the horizontal position is perhaps better than any medicine. If all palliative measures have been tried, and at the end of twelve or eighteen months there is no improvement, a second operation may be warranted. The dangers of operative procedure, and the uncertainty of the operation causing any improvement, must be stated to the patient. If the patient prefers the operation, an exploratory incision should be made. In one case the speaker had found a loop of intestine attached to the uterus, which he loosened with a good result. In another case considerable relief was afforded. As a rule, however, it is not possible to separate adhesions, and if separated they are prone to unite, and fresh peritonitis is apt to follow. Often the exploratory incision is all that can be made.

Conclusions:

1. All cases of abdominal section done for the relief of pain should be carefully followed up for at least two years, and not counted as cured simply because the operation has not been fatal.

2. Peritonitis following operation is to be dreaded as much for its remote consequences as for its immediate danger.

3. Extreme caution is demanded when the operation is undertaken where there exist the physical signs of chronic peritonitis.

4. Secondary operations, as a rule, are of no value, although occasionally they may afford relief.

5. Where the operation is done for the relief of pain, a guarded prognosis should be given. There are certain chances that a perfect cure will not result even if the operation itself is entirely successful.

Dr. A. J. C. Skeene, of Brooklyn, said that among the causes of pain after laparotomy, he would place the ligature. In tying the pedicle after removal of the ovaries, some traction must be made upon the broad ligament and the nerves must be drawn upon. That form of pain may disappear. Another cause of pain is the application of the ligature just tight enough to arrest hemorrhage without destroying the nerves. He thought that we have more pain after the use of the ligature than after the use of the cautery clamp. The cautery as a means of treating the pedicle has never been thoroughly tried in this country.

In regard to what constitutes success after abdominal section, he stated that many of the cases which he had reported as failures have subsequently turned out to be most successful.

Dr. R. Stansbury Sutton remarked that Dr. Hunter had, in his paper, alluded to a case on which he operated two and a half years previously. In this case the ovary was surrounded by a coil of intestine which had endergone fatty degeneration to such an extent that its own weight was sufficient to cause it to break. He, Dr. Sutton, removed the ovary with the diseased bowel and brought the edges of the intestine together. The woman recovered, but she was not cured of her pain. It is not often that we have the opportunity during life to determine the results of a resection of the intestine. He asked Dr. Hunter to state what he had found.

Dr. W. Gil Wylie, of New York, objected that the author appeared to have completely ignored the general condition of the patient. What will cause pain in one person will not in another. With reference to peritonitis, he regarded it as a condition behind which there is some disease. In chronic peritonitis there is often some cause which keeps renewing the inflammation. In many of the cases that suffer after operation, the pain is due to imperfect operation. Sometimes a small portion of diseased tissue is left. He had taken the precaution to destroy the diseased tissue that may be left beyond the ligature, either by carbolic acid or preferably by Paquelin's cautery. This has lessened the mild attacks of peritonitis. Sometimes the inflammation is centred around the ligature, leading to abscess and the formation of a sinus. In some of these cases the trouble can be cured by dilating the sinus and fishing out the ligature. In many cases the peritonitis is due to the bursting of a small cyst. He had intentionally burst these cysts on the table, put the patient to bed, and watched the case.

Again, in cases where there is chronic inflammation of the lining membrane of the uterus this is not always cured by removal of the tubes and ovaries. This may cause pain not only in the uterus, but reflexly in other parts of the body. These pains can often be cured by dilating the uterus and applying carbolic acid.

Dr. Robert Battey, of Georgia, stated that he experienced the difficulties alluded to by Dr. Hunter. All are familiar with the neurotic woman. As a result of a carious tooth, an intense neuralgia may be set up which may continue for years, and not be relieved by the removal of the diseased tooth. This is probably due to an alteration in the nerve tissue itself. He had carefully considered the explanation that these pains persisting after abdominal section were due to inflammation and adhesions, but he had wholly failed to find a satisfactory explanation in this quarter. The neurotic cases which have given him the most trouble have been

almost uniformly those where he was unable to find any such deposit in the pelvis.

The speaker had said that at the end of twelve or eighteen months we should give up these cases as failures. He would qualify that statement by more than doubling the limit. Some of the cases which were most unsatisfactory at the end of a year, had achieved the most gratifying cure by the lapse of time.

Among the causes which produce this neurotic condition, he inclined to rank, in the first place, an acquired neurotic habit from long suffering. In looking for causes, he had been much struck by one point—that alluded to by Dr. Skene—that is, the use of the ligature, and especially a rather loosely tied ligature. Dr. Skene suggests the use of the cautery and clamp. The speaker formerly used a method which has not been alluded to, and that was the separation of the ovary from its attachment by the écraseur. In these cases he did not have any troublesome neuroses, and there was no hemorrhage. He had been seriously considering a return to this method of treatment.

With regard to treatment by a second opening of the abdomen, he called attention to the fact that by a simple opening of the abdomen, for purely diagnostic purposes, unaccompanied by any great disturbance of the parts, the condition of the patient is often greatly improved, especially as regards pain. In a case of gonorrhœal inflammation, he opened the abdomen after the failure of all other methods of treatment. Finding everything glued down by adhesions, he abstained carefully from all manipulation after satisfying himself of the entire impracticability of any operation. The patient, without any deception on his part, gained the impression that the ovaries and tubes had been removed. She has now been under observation two months, and the relief has continued. Before the operation, she used full doses of morphia, but since then she has used no anodyne whatever. She has not menstruated since the operation.

He thought that, after removal of the ovaries and tubes, the uterine trouble will get well, but the cure may be hastened by applications to the interior of the uterus of a solution of iodine in carbolic acid.

Dr. H. P. C. Wilson, of Baltimore, was satisfied that while cases do occur where the pain after laparotomy continues as a result of local adhesions, yet the majority of cases belong to the class in which the condition is due more to the neurotic element than to the operation. Most of these are long-standing cases where the mental condition has become so morbid that the patient is almost insane on the subject of her ovaries and tubes. Even if these organs are removed, the neurotic condition may remain for a long time. Where the woman has to work, and has not time to think of herself, these pains more rapidly disappear than where she is pampered with every luxury. Nothing is so good for the relief of these pains than exercise by walking. There is one remedy of which he uses more than any other drug in the materia medica: that is assafœtida. He never orders less than sixty pills. This tends to keep the mind occupied, and these conditions are more mental than physical.

Dr. Matthew D. Mann, of Buffalo, supposed that Dr. Skene,in speaking of the ligature, referred to silk. He did not see that the objection would hold against catgut. Dr. Mann had used this in a number of cases and had no trouble with it. As regards the time after operation at which recovery may occur, he had seen it take place long afterward.

Dr. Hunter, in reply to Dr. Sutton, said that the patient was suffering much pain, which was increased on defecation. On opening the abdomen a little to the right of the original incision, he found the attached portion of the gut. A white oblique line showed where the two portions of the gut had united, and this was fastened to the abdominal wall. It showed a very satisfactory result. The condition was neither improved nor made worse by the operation. The neurotic condition has been referred to, but he considered this secondary. As regards chronic metritis, he agrees with Dr. Battey that usually after removal of the ovaries nothing more is required. He was willing to admit that his limit was too short and should be extended to two or three years. It is not well to expect any improvement after removal of the ovaries and tubes for at least twelve months. As long a time as this is required by the system to become accustomed to the changed condition.

Dr. James R. Chadwick, of Boston, then read a paper on

THE BLUE DISCOLORATION OF THE VAGINAL ENTRANCE AS A DIAGNOSTIC SIGN OF PREGNANCY.

He had made it a point in all cases of early pregnancy to make a note of how much discoloration he could detect. He had tables of four hundred and forty cases examined. He had divided the discolorations into four groups, 1st, *doubtful*, where it was so faint that he could not be certain of its presence; 2d, *suggestive*, where it was more marked; 3d, *characteristic*, where the discoloration, though faint, is confined to the anterior wall of the vagina and more particularly to the urethra, just below the meatus and on either side of the meatus. In every instance, with one exception, where this was present, the woman was pregnant; and 4th, *marked*, where the congestion has become deep and exhibits the appearance constantly seen during pregnancy. He did not claim that the characteristic discoloration is seen in every case, but if carefully looked for, it would be found quite pronounced in the majority of cases. The color varies from a violet to dusky, or almost black. He claimed that this sign was of especial value in cases of retroversion, where the size of the uterus could not be determined, and in extrauterine pregnancy. He had obtained much assistance from it in a few cases of pregnancy accompanied by fibroid tumors, and also where there was a large accumulation of abdominal fat This sign is of decided value in the early months of pregnancy, but its absence should not be accepted as a positive proof against pregnancy, Cases were cited in which the discoloration had been observed in the seventh or eighth week of pregnancy.

Dr. H. P. C. Wilson considered this one of the most valuable means of diagnosticating pregnancy in the early stages. It is invaluable in cases where women wish to deceive you.

Dr. A. J. C. Skene regarded this as a most reliable sign in the early months of pregnancy. He believed it to be an illustration of the physiological hyperæmia of the formative stage of development.

Dr. Joseph Tabor Johnston, of Washington, stated that some years ago he had referred to this point, and

the discussion which followed seemed to indicate that the discoloration was a congestion produced by interference with the return of the venous circulation by the pressure of the enlarged uterus. It was held that the same discoloration could be produced by any other tumor which would have the same effect as the pregnant uterus.

Dr. William H. Parish, of Philadelphia, remarked that in regard to the continuance of the discoloration after labor, he had noted that in primipara where involution of the vagina takes place completely, the discoloration disappears with corresponding rapidity. Where there is subinvolution, the blueness may continue for a longer time. In multiparous women, where the blueness was marked, he had associated it with a condition of subinvolution of the vagina.

Dr. Chadwick, in closing the discussion, said that he had failed to note any persistence in the discoloration described. The general discoloration may persist, but the characteristic blueness will be found to disappear. He had looked for this sign in forty or fifty cases of fibroid tumor and had not found it in a single instance.

Afternoon Session.

Dr. R. Stansbury Sutton exhibited the specimens from three cases of

SUPRAVAGINAL HYSTERECTOMY

and made some general remarks on the operation.

Dr. W. Gil Wylie thought that, in the large number of cases, all that is necessary can be done by the vagina. In many cases of fibroid tumor, however, where hysterectomy has been performed for hemorrhage, curetting the cavity of the uterus would probably have obviated the necessity for the operation. Fibroid tumors cause hemorrhage by enlarging the uterine cavity. Where there is hemorrhage, there is nearly always granulation. With the curette, not only may the hemorrhage be brought to a normal standard, but he had seen the tumor diminish in size. It had appeared to him that fibroid tumors have a period of development and a period of decay. After a fibroid tumor has continued five or eight years, its vitality is lessened and it may diminish in size. This is not the case in all instances, and we meet with cases in which, if hysterectomy is not performed, the patient will die as the result of the hemorrhage.

Dr. Reamy, of Cincinnati, thought that if Dr. Wylie uses the curette in cases of fibroid tumor, he must, notwithstanding the adoption of all antiseptic precautions, have a certain number of cases of septicæmia. Curetting is much more likely to be followed by septicæmia when there is a fibroid tumor of the uterus than when the operation is done for ordinary fungous granulations. He believed that curetting under such circumstances would be almost as dangerous as the removal of the tumor.

Dr. Wylie, in reply, said that, so far as his experience went, he had had no trouble whatever. He invariably uses antiseptics before the operation and douches out the cavity afterward. He had never had septic poisoning in any case of curetting, and would not hesitate to use the instrument in any case of fibroid tumor with hemorrhage. He employed the bichloride solution, one to two thousand, in the vagina and one to five thousand in the uterus.

Dr. Wilson said that where we have excessive hemorrhage from a fibroid tumor, he believed that there is no remedy so efficient as the curette. He had never seen any evil results from its use.

Dr. Reeve asked whether any of the members had any experience with incision of the cervix in the treatment of fibroid tumors. This was highly recommended some years ago.

Dr. Sutton stated that he had tried division of the cervix and had stopped the hemorrhage, and had seen rapid fatty degeneration of the tumor occur in one case. He had tried curetting, the injection of iodine, and many other plans of treatment, and had obtained good results by all.

Dr. William H. Parish, of Philadelphia, then read a paper on

THE HIGH MORTALITY OF THE RECENT CÆSAREAN OPERATIONS IN THE UNITED STATES, WITH THE REPORT OF A CASE.

S. M., married, was admitted to the Philadelphia Hospital, while in labor, September 20, 1885. She was the mother of two children, the last of which was born twelve years previously. Labor had begun on September 18th, the membranes soon rupturing. She was seen by two physicians, who had her sent to the hospital. The cord had prolapsed and the pulsations had ceased before she was sent to the hospital. On admission, she was found much exhausted, with the cord protruding from the vagina. The resident physician not recognizing the gravity of the case, Dr. Parish was not summoned until some hours after her admission. At this time the uterus was in a state of tonic spasm. The patient was etherized. The vaginal examination revealed merely a rigid condition of the cervix. The pelvic canal was roomy. The hand was introduced into the vagina and two fingers into the uterus. This examination showed two hard intramural fibroid tumors about the internal os. The author concluded that Cæsarean section should be performed without delay, and three of his colleagues were sent for in consultation. They all agreed that attempts at enucleation should not be made, but they did not agree as to the necessity of Cæsarean section. They were in favor of craniotomy. The skull was perforated, but it was found impossible to grasp and crush the head. Various instruments were tried without avail. The necessity for Cæsarean section was then conceded by all. The uterus had been emptied of its waters for at least forty hours. The vagina and lower part of the uterus were washed out with a solution of corrosive sublimate. The abdomen was opened and the section of the uterus made. The cervix was closed by tying around it a rubber drainage tube. At once a very offensive gas escaped. A large child was removed. The placenta was not in the line of the incision. Antiseptic precautions were employed during the operation. Deep and superficial sutures were introduced into the uterus, and the abdominal incision closed. A hypodermatic injection of ergotin was at once administered. After the operation the tube around the neck was removed. The patient died twelve hours later from exhaustion and rapidly developing septicæmia. At the autopsy the lips of the uterine incision were found in contact. Three dense intramural fibroid tumors were found.

Dr. Parish then referred to the great mortality of this operation in the United States, and presented the statistics of Dr. Robert P. Harris, of Philadelphia, of which the following is a synopsis:

Cæsarean operations in the United States .	144
Women saved, 37.5 per cent. . . .	54
Children living when delivered . .	64
First fifty operations, saved, 54 per cent.	
Second fifty operations, saved, 24 per cent.	

Operations performed in good season when the condition of the woman was favorable have in this country saved seventy-five per cent. of the women, and eighty per cent. of the children.

Cæsarean section has been performed in thirteen cases where the obstruction was due to fibroid tumors, and of this number four recovered and five children were living. The time in labor in the saved cases was nine and one-half hours, fourteen hours, three days, and four days.

The following rules were then given for the performance of the operation:

1. Carefully determine the degree of obstruction and operate early in labor, as soon as the os is sufficiently dilated to permit drainage and before the rupture of the membranes. 2. Operate with full antiseptic precautions. The spray over the abdomen is unnecessary. 3. Control hemorrhage by compression of the cervix, either with a rubber tube or manually, preferably by the latter means. 4. Introduce numerous deep and superficial sutures so as to approximate accurately the muscular walls of the uterus, but do not carry the sutures into the endometrium. Removal of a section of the muscular wall is unnecessary. 5. Protect the peritoneum from the discharges, and if it becomes soiled it should be carefully cleansed. 6. Ergotin should be administered at the beginning of the operation.

Dr. Reamy stated that in three thousand cases of labor he had never made a Cæsarean section nor any of its modifications. It is only now that the people are coming to recognize that craniotomy is not to be performed in any but the rarest instances, and that the sacrifice of life is unjustifiable. The explanation of the better results in other countries is not so much in the skill of the operators as in the condition of the cases when operated upon.

Dr. Parish agreed with Dr. Reamy, that craniotomy should be an operation of exceeding rarity. The people are not yet ready in this country to accept Cæsarean section, but one of the great troubles is with the general medical profession, who regard this as an operation almost necessarily fatal.

Adjourned.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, September 24, 1886.

First Vice-President, Dr. J. C. Cameron, in the Chair.

OVARIAN TUMOR.

Dr. Trenholme exhibited a large ovarian tumor, weighing some sixty pounds, which he had removed from a patient a few weeks ago. The woman was aged fifty years, and had suffered for years from this tumor, which had been frequently tapped. Extensive adhesions to the parietes, intestines, stomach, and liver were met with, and separated with great difficulty; the patient recovered well from the operation, but died of exhaustion on the eighth day. Dr. Trenholme remarked that the extensive adhesions found in this case were due to the frequent tappings, a practice which he deprecated. He had, during the past three months, performed ovariotomy four times, with three recoveries.

CASE OF SCURVY.

Dr. R. L. MacDonnell related the clinical history of a case of scurvy which had ended fatally by cerebral hemorrhage. The patient, a young farm laborer from the eastern townships, had for the last year lived on a diet composed exclusively of bread and butter, tea, milk, sugar, with no other vegetable than potatoes, and no meat whatever. Three months ago his health began to break down; he suffered from weakness, drowsiness, and indisposition to work, bleeding gums, and epistaxis, while the body became covered with bruise-like patches of discoloration, which appeared first upon the legs and then spread over the body. There had been rapid loss of weight. The main symptoms on admission were the presence over the body generally of small purplish patches of a petechial kind, sponginess, ulceration, and recession of the gums, and great debility. After four days' residence in the Montreal General Hospital, severe headache and vomiting set in, the patient became very feeble, semi-conscious, and died.

Dr. R. J. B. Howard, who had made the autopsy, exhibited the brain, lungs, and heart. A large hemorrhage had taken place into the right cerebral hemisphere under the lateral ventricle, forming a cavity with ragged walls, which occupied the whole of the right temporo-sphenoidal lobe, and extended forward into the frontal and backward into the occipital lobe, converting the lower part of the right hemisphere into a mere shell. The surface of the heart was covered with extensive subpericardial hemorrhages, and in both lungs there were many hemorrhagic infarcts, but no subpleural effusions.

ANEURISM OF THE THORACIC AORTA.

Dr. Kennedy related a case of death from aneurism in which he had a day or two ago performed a post-mortem. The patient, a man aged forty-one, for the last three years had suffered intensely from neuralgia of the lower left intercostal, and had consulted many physicians without obtaining relief. He died suddenly while sitting in a chair. The most-mortem revealed the cause of death to be the bursting of a large aneurism of the thoracic aorta in the left pleural cavity. The ribs and left sides of the vertebral column were much eroded. Dr. Kennedy remarked that it was strange that the cause of the neuralgia had never been recognized during life. There was also found a large aneurism of the abdominal aorta.

Dr. George Ross said that a year ago he had seen this patient, and had carefully examined him for aneurism, but there were absolutely no physical signs to be found. Suspecting, however, that the severe and persistent pain was due to the pressure of an aneurism, he kept the patient in bed and put him on large doses of iodide of potassium, with the result of almost entirely

relieving his pain. This confirmed his diagnosis of aneurism.

CASE OF BRAIN INJURY DUE TO ENTRANCE OF A TIN PEA-SHOOTER THROUGH THE ORBITAL OPENING.

Dr. Casey Wood related the following case: R. R., aged four years, was running along the street, holding in his hand a tin pea-shooter, three-eighths of an inch in diameter and eighteen inches long. He fell and struck his head against the end of the tube when held upright in his hand. The hollow cylinder passed through the left lower eyelid, about a quarter of an inch from the margin of the orbit, and penetrating two and three-quarter inches, inflicted an injury to the brain. The tube was with difficulty withdrawn by a passer-by, who noticed upon the end of it some putty-like substance mixed with blood.

The accident occurred on the 10th of May, about ten o'clock A. M., and when the child was seen shortly afterward he was unconscious. There were extensive contusion and œdema of tissues surrounding wound. The left pupil was dilated, with no response to light; the right pupil was normal and responded to light. The pulse was very weak and slow. Vomiting almost constant. Respiration was labored and slow. The child was pale and restless, and the vomiting continued during the day. There were slight proptosis, complete motor and sensory paralysis of right side, with convulsive movement of right arm and leg—these movements being chiefly marked in right arm. The convulsive movements continued all day, and for a time before they ceased there was simply spasm of right arm. Child was unconscious at 9 P M. Temperature, 100 F.

Dr. Wood advised the parents to have the useless eyeball removed, so as to establish proper drainage from the cerebral wound, but this was refused. He attempted to keep wound open by introducing a probe, and inserting a drain of cotton, which, however, proved inefficient.

There was much inflammatory action about the orifice of the wound, and the eye was involved. A week after the accident, the patient had a distinct return of consciousness, which lasted a day or two. Ten days after, the patient became comatose, and died on the 29th of May, nineteen days after the injury. Dr. Wood was unable to obtain leave to make a post-mortem examination, but thinks there is little doubt that the track of the wound, after piercing the left lower eyelid, extended from a point midway between the outer and inner angles of the foramen, destroyed the nerve, and passed through the roof of the orbit, and entered the brain near the fissure of Sylvius. The author went on to say that there was no doubt that the patient died of septic meningitis, and thought it a matter for regret that the proper treatment, viz., enucleation of the eyeball, cleansing the wound, and establishing a deep drain, was not carried out, because of the objection made by the parents.

Dr. Shepherd thought, with Dr. Wood, that the only hope of recovery in these cases was the proper cleansing and drainage of the wound, and keeping the parts perfectly aseptic. He related a case of injury to the skull, due to a kick of a horse, where there was an extensive depressed fracture; the brain could be seen pulsating. As there were no symptoms of compression, Dr. Shepherd had treated the wound antiseptically; the bandage was put on firmly, and within a few minutes the patient had a severe epileptiform convulsion, and lost consciousness. On removing the bandages, the patient recovered and had no more fits, and the wound healed rapidly. When last seen, five months after the injury, the patient was perfectly well. The slight extra pressure caused by the bandages was sufficient to produce grave symptoms.

NEW INVENTIONS.

A NEW SERIES OF METRIC TEST-LETTERS AND WORDS FOR DETERMINING THE AMOUNT AND RANGE OF ACCOMMODATION.[1]

By CHARLES A. OLIVER, M.D.,

one of the ophthalmic and aural surgeons to st. mary's hospital, philadelphia, etc.

This set of reading-types has been made upon the same basis that governed the test-types presented at last year's meeting of the Society. By reason of this conformity an examination of acuteness of vision and accommodative action by means of these two series serves to place the results upon a uniform and proper foundation. The following advantages over other reading-types may be claimed:

First, the Letters. The Snellen block letter has been preserved.

Second, the Character and the Arrangement of the Words. The letters C D E T O L F are made into words of one or two syllables, and placed in columns. They are so arranged that a word composed mainly of vertical and horizontal strokes is followed by a word made of a majority of curved lines, no matter in what vertical or horizontal direction the columns may be read.

Third, the Sequence. The smallest type is placed first, each increasing type following in succession, until one equivalent to two dioptrys is reached, which finishes the card, leaving but a half dioptric separation between this card and the large one.

Fourth, the Interspace. Each word and letter is surrounded by a space equal to or greater than its own area, thus preventing any letter or word from being confounded with its neighbors.

Fifth, the Gradation. The following sizes are employed: 0.25 D., 0.50 D., 0.75 D., 1 D., 1.50 D., and 2 D.

Sixth, the Construction. The letters are phototypes. The card is made of heavy neutral gray cardboard, with rounded corners. The letters are printed upon a sunken surface, thus keeping them free from dirt by contact through handling, or by the card being placed upon dirty surfaces.

James W. Queen & Co., of 924 Chestnut Street, Philadelphia, have kindly superintended the construction of the cards, and to them the author here desires to express his thanks for careful and satisfactory work.

[1] Abstract of a paper read before the American Ophthalmological Society, July 22, 1886.

NEWS ITEMS.

PARIS.

From our Special Correspondent.

Treatment of Glaucoma.—At a recent meeting of the Academy of Medicine, M. Panas spoke in high terms of a new therapeutic remedy suitable to some forms of glaucoma. Eserine, though one of the most active myotics, cannot always be endured, and pilocarpine in some respects is preferable, although less active. The different collyria which are used are composed either of five centigrammes of eserine to five grammes of water, or of ten centigrammes of pilocarpine to five grammes of water. The improvement is very rapid, but in order to obtain a cure, one of these collyria must be used for several months. When first used, five or six instillations should be administered in twenty-four hours, afterward gradually decreasing the applications to one or two instillations *per diem*. Those forms of glaucoma in which this treatment has proved beneficial are precisely those in which iridectomy or sclerotomy has been inefficacious.

Connection Between Noises in the Ear and Stomach Affections.—Dr. E. Ménière, in an article in the *Revue de Laryngologie et d'Otologie*, mentions the frequent connection which exists between noises in the ear and stomach affections. Dyspeptic or gastralgic patients suffering from these complaints are very numerous. In some cases dyspnœa is accompanied with noises without the hearing being in any way affected. In those cases where there is no aural lesion the cause of the symptoms should be sought for in the internal ear, and it will be found that some connection exists between complaints of this kind and vertigo of the stomach. The noises in the ear vary, sometimes resembling whistling, boiling water, but never the isochronous beatings of the pulse. Otologists should, therefore, carefully find out, when patients complain of noises in the ear and deafness, whether this state is not due to disturbance of the digestive organs. Noises in these cases are more frequently noticed during the second or third year, and even later. According to M. Ménière, they affect only one ear. M. Leden speaks of having met with cases in which both ears are affected. When considerable deafness occurs, it is often incurable; under these circumstances increase or decrease of noises is, in some cases, identical with the dyspeptic state of the patient. Local remedies give, as a rule, very poor results; the most rational course is to treat perseveringly the stomach affection, which undoubtedly is the origin of these complaints, which are at once painful and liable to bring on serious disorders. In some cases the lesions of the internal ear, although not serious, may prove sufficiently lasting as to determine the persistence of noises which are more or less noticeable.

Hysteria in the Army.—The question of male hysteria is one of great interest to army physicians. They have frequently to diagnosticate simulated hysteria and epilepsy. In some cases the diagnosis is easy, as the phenomena are identical with those of female hysteria, but these cases are exceptional, military hysteria presenting, as a rule, milder aspects. When stigmata appear in persons subject to epileptic fits, a positive diagnosis is indicated; in less evident forms it is more difficult to arrive at a definitive diagnosis. In order to determine the nature of the nervous disturbance of the patient, a careful examination should be made to detect any of the sensitive and sensorial modification or any of reflex action, suppression of pharyngeal reflex action, persistence of reflex action in the tendons. Also, if electro-muscular contractility is preserved whether, there is perversion of the muscular sense. Furthermore, a military doctor must be able to detect hysterical paralysis which may be occasioned by traumatism. This kind of paralysis is not included in those diseases which give the right to retire from service, but only enables the patient to obtain a sort of renewable pension, so that besides the scientific interest which the disease presents, physicians should study it from an economical point of view and thus be on their guard against deception and also against faults in the diagnosis. The diagnosis is more difficult when the hysterical patient is clever at deception or under the influence of an undue indulgence in alcohol or absinthe. M. Emile Duponchel has written a book entitled *L'hystérie dans l'Armée*, which exhaustively treats the subject.

Pasteur's Critics.—A Paris correspondent of the London *Standard* says: "After having been the idol of an hour, and after seeing the French in their enthusiasm subscribe a large sum of money for the establishment of an institution which is to bear his name, M. Pasteur is now becoming the object of virulent attacks. It is chiefly among the radicals, and those whose scientific knowledge is very limited, that M. Pasteur's detractors are to be found. A certain number of doctors have, it is true, recently pronounced against the efficacy of his treatment against hydrophobia; but the great majority of the medical faculty reserve their judgment for the present. Dr. Lallier, one of the medical celebrities of Paris, in a long conversation I had with him on the subject, spoke in the highest terms of the patient researches which have already enabled M. Pasteur to make valuable discoveries. As for M. Pasteur's good faith, Dr. Lallier has not the slightest doubt, for he is well acquainted with him, and is quite sure that he would never affirm anything unless he was himself perfectly convinced of its truth. Though Dr. Lallier admits that the inoculations appear to have protected those who followed M. Pasteur's treatment from hydrophobia, at least in the great majority of cases, he nevertheless holds it necessary not to pronounce definitely in favor of that treatment, and for the following reasons: First, because sufficient time has not yet elapsed since the first person was inoculated by M. Pasteur to prove that the germ of hydrophobia has been destroyed or rendered innocuous. But that is not Dr. Lallier's main reason for refusing to pronounce on M. Pasteur's treatment. He pointed out to me that there was an obscure point which rendered that treatment a mystery. When a person is vaccinated against smallpox a virus is introduced into his system which gives him the disease in an attenuated form. The vaccine, to use the word commonly employed, 'takes,' and the vaccinated person has a certain amount of fever. In the case of persons being vaccinated against smallpox, after they have already been attacked by that disease, Dr. Lallier affirms that till now there has been no

proof forthcoming to show that the intensity of the attack of smallpox is diminished by the vaccination. M. Pasteur's treatment, therefore, puzzles him, for, when inoculated by M. Pasteur, the patient has only the germ of hydrophobia in his system, but the liquid substance which is introduced into his body has no apparent effect —that is to say, the patient is not in the least ill, and does not suffer from even the attenuated symptoms of hydrophobia. By vaccination the patient is given smallpox in a mild form when he has not the germ of that disease; whereas when a person is inoculated against hydrophobia he has already the germ of that disease, and is not given it in any form whatever."

Unusual Suicide.—Mr. William Allen reports, in the *Dublin Journal of Medical Science* for March, 1886, a case of a prisoner who, on being informed that his wife had just been arrested, started off at full speed toward a wall some fifty feet away, and dashed the vertex of his head against it. So great was the concussion that the body rebounded three feet from the wall, and the man dropped dead without a struggle. The case is of interest from a medico-legal point of view, as had the man not been seen by witnesses to commit suicide, it might reasonably have been supposed that he had been struck by a keeper, or a fellow convict.

Diet Tables.—We have received from Messrs. Reed & Carnrick, of New York, a series of diet tables for use in the more common diseases, the lists being arranged in a manner convenient for removal and presentation to the patient. No such list can be complete, nor yet of universal application, but the one before us is a very creditable attempt and will often be found useful.

Effect of Wind on Traps.—The *Plumber and Decorator* cites a case where the seals of traps were affected by a high wind. The house in question was two stories high, with a basement; the horizontal soil-pipe was about thirty feet long from a running-trap to where it joined the vertical soil-pipe, which was forty-five feet high, carried well up above the ridge of the roof and about ten feet distant from it. On the basement, the first and the second floors were the usual fixtures, each with its own branch from the soil-pipe. The fresh-air inlet was two inches, the soil-pipe four inches, open at the top. The closet has a short hopper, and most of the traps were S-traps, with five-inch seals and no vents. Although the discharge of any fixture in the house has scarcely any effect on the seal of the traps of any other fixture, yet the wind caused a fluctuation of nearly one and one-quarter inches. There was no more wind than might occur occasionally in an ordinary season. The observer purposes to try the effect of ventilating-caps to see if they will prevent the fluctuation of water in the traps caused by wind.

A similar case occurred some years ago at Roxbury, Mass. In this case the soil-pipe extended above the roof, but there was no air-inlet on the house-drain. When the wind was blowing strongly the seals of the traps in the bath-room were disturbed, and an experiment showed that the air in the soil-pipe was rarefied, producing a suction tending to break the trap-seals. In this case the want of an air-inlet seemed to be the cause. In the English case the air-inlet was probably too small when the great length of soil-pipe was taken into consideration.

Minnesota Opium.—During the year 1885, Emil Weschke experimented on the cultivation of different species of Papaver at New Ulm, Minn., and from the unripe capsules of P. somniferum prepared a quantity of opium which, in the air-dry condition, contained 2.8 per cent. of moisture, and, after drying, yielded 15.23 per cent. of morphine, 0.325 per cent. of narcotine, 0.416 per cent. of codeine, and 3.5 per cent. of meconic acid. The author does not believe that the cultivation of the poppy for the production of opium in this country would be attended with profit.

Surgeon Barbers.—The *Boston Post* says that "barbers were originally surgeons," and adds, apparently with much feeling, "a great many of them are now."

Milk and Throat Disease in Canterbury, England.—The medical officer of health of Canterbury has reported a sudden outbreak of throat disease, which, in eight days, attacked no less than 231 persons, without fatal effects in any instance. So far as can be judged, the epidemic was due to milk, for of 160 houses served from the dairy which is in suspicion no less than 94 were affected, and, so far as can be gathered, out of 36 houses partly supplied from the same dairy and partly by other milkmen 21 were affected. In the other instances of houses affected the persons in question seem almost exclusively to have been those who were either attacked late during the outbreak, and under circumstances which admitted of their having derived the infection from antecedent cases, or else persons who may easily have partaken of the suspected milk elsewhere than in their own homes. So far, says the *Lancet*, the reports on the case are, we trust, incomplete, for by far the most interesting feature of the case is the implied sickness of animals in connection with the outbreak, and the history as to this is as yet very imperfect. Indeed, we only learn of a lamb in the suspected dairy premises having suffered from "sore throat," and of cows having had "diarrhœa." The connection now established between disease in the human subject and affections of a specific character in lower animals, and especially in cows, is of far too great importance to admit of such a case being passed over by such vague accounts in so far as these animals are concerned. It is to be hoped that skilled veterinary and pathological aid was secured, either through the Local Government Board or otherwise, and that a more complete report will be issued.

Medical Instinct in Animals.—Animals get rid of their parasites by using dust, mud, clay, etc. Those suffering from fever restrict their diet, keep quiet, seek dark, airy places, drink water, and sometimes plunge into it. When a dog has lost its appetite, it eats that species of grass known as dog's grass, which acts as an emetic and a purgative. Cats also eat grass. Sheep and cows, when ill, seek out certain herbs. An animal suffering from chronic rheumatism, always keeps, as far as possible, in the sun. The warrior ants have regularly organized ambulances. Latreille cut the antennæ of an ant, and other ants came and covered the wounded

part with a transparent fluid secreted in their mouths. If a chimpanzee is wounded, it stops the bleeding by placing its hand on the wound or dressing it with leaves and grass. When an animal has a wounded leg or arm hanging on, it completes the amputation by means of its teeth. A dog on being stung on the muzzle by a viper was observed to plunge its head repeatedly for several days into running water. The animal eventually recovered. A sporting dog was run over by a carriage. During three weeks in winter it remained lying in a brook, where its food was taken to it. This animal recovered. A terrier hurt its right eye. It remained under a counter, avoiding light and heat, although it habitually kept close to the fire. It adopted a general treatment, rest, and abstinence from food. The local treatment consisted in licking the upper surface of the paw, which it applied to the wounded eye; again licking the paw when it became dry. Animals suffering from traumatic fever treat themselves by the continued application of cold water.

Providing for the Family of Professor von Gudden.—A gratuity of £10,000 has been granted from the Bavarian Civil List to the widow of Professor von Gudden, of Munich, who perished with the late King of Bavaria in the lake at Castle Berg. He left a family of eleven children.

Consumption of Tobacco in Europe.—M. Paul Leroy-Beaulieu, writing in the *Economiste Français*, gives the following figures, showing the quantity of tobacco consumed in the different countries of Europe, and the rate per 1000 inhabitants: Spain, 110 pounds; Italy, 128 pounds; Great Britain, 138 pounds; Russia, 182 pounds; Hungary, 207 pounds; France, 210 pounds; Denmark, 224 pounds; Norway, 229 pounds; Austria, 273 pounds; Germany, 336 pounds; Holland, 448 pounds; and Belgium, 560 pounds.

A Case of Rabies cured by hypodermatic injections of corrosive sublimate and atropine is reported by Dr. de Pietra Santa, in the *Journal d'Hygiene*. The man was bitten by an undoubtedly rabid dog, and developed symptoms of hydrophobia two and a half months later.

Large Bequest to a Western Medical College.—The late Samuel Ensworth has bequeathed a sum of about $100,000 in trust for the erection and maintenance of the St. Joseph Medical College and a hospital to be erected in St. Joseph upon such a site as may be selected.

A New Disinfecting Compound for purifying the atmosphere of the sick-room has just been presented to the Berlin Medical Society. Oils of rosemary, lavender, and thyme, in the proportion of 10, 2½, and 2½ parts respectively, are mixed with nitric acid in the proportion of 30 to 1½. The bottle should be shaken before using, and a sponge saturated with the compound and left to diffuse by evaporation. Simple as it is, the vapor of this compound is said to possess extraordinary properties in controlling the odors and effluvia of offensive and infectious disorders.

The Twins of Locana, who have been shown in almost every town of Europe as the successors of the renowned Siamese twins, are at present dying in Vienna, or at least are very ill. These twins, now aged ten, are united from the sixth rib downward. They have but one abdomen and a single pair of legs. One of these is under Jacob's control; the other, under that of John. They cannot walk, and cannot easily keep their balance. One is much stronger and healthier than the other, and eats more; it is Jacob, and he keeps his brother alive. Some time ago both quarrelled over a toy, and John got so excited that he fell into a state of syncope, or trance, from which he did not recover till the next day. He had already had an illness of the same kind, and Virchow, of Berlin, had prognosticated that a second one would kill him. This, Jacob knew well; so, of course, the illness of his brother (an apparently lifeless body) gave him all the more concern, since the death of his brother would but shortly precede his own. The physicians are doing their best to save the unfortunate children. Of course, no operation can be thought of in the present case. Even in that of the Siamese twins, there were great difficulties attending a surgical intervention; and, before it was resolved to intervene, death had already done its work. If the twins recover they will go to the States, where they were engaged, it is said, at the rate of $6000 per year; if not, their skeleton is already promised to a London anatomical museum for eight thousand pounds.

Value of Life.—Dr. Charles L. Dana discusses in the *Forum* the question, "Is life worth saving?" He places the value of an adult life to the State at at least $750, and its annual productive power at $95. One-half of all the deaths occur during the productive age, so that the 200,000 deaths at this period, which occur annually in the United States, represent an enormous loss to the country. It is also calculated that every death represents about two years of sickness, and that there are in this country about 1,500,000 persons sick all the time. In England and Wales it has been found that every workingman averages a week and a half of sickness in the year. It is estimated that the wage-loss from sickness in France is $70,000,000 each year, and from death $188,000,000.

Food Adulteration.—In an examination of foods by the chemists of the Massachusetts Board of Health, the following forms of adulteration were of most frequent occurrence:

Milk—addition of water or coloring matter, and abstraction of cream.

Butter—substitution of foreign fats, and addition of coloring matter.

Spices—addition of starch and other foreign powders. Especially true of pepper and mustard.

Cream of tartar—substitution of starch, gypsum, and other cheaper substances.

Baking powders—alum and other injurious ingredients. Baking powders have no legal standard, other than that of freedom from harmful ingredients.

Lard—presence of cheap fats and oils.

Olive oil—substitution of cheaper oils.

Jellies and preserved fruits—Substitution of cheaper fruits, and addition of coloring matter.

Vinegar—absence of the required amount of acetic acid, and addition of coloring matter.

Honey—substitution of cane sugar, glucose, and other substances.

Molasses—addition of glucose, presence of tin or other foreign substances.

Sugar—glucose, poisonous coloring matter.

Maple sugar and syrup—glucose.

Confectionery—terra alba, poisonous coloring matter, fusel oil, arsenical wrappers, etc.

Coffee—mixture or substitution of various cheaper substances.

Canned fruits, vegetables, and meats—metallic poisons.

The Drug Clerk.—The most satirical shot at illegible prescriptions that we have yet seen is the following from the *Medical Age:*

A gentleman received a note from his lawyer which he was unable to decipher. On his way to his office he met a friend at the door of a drug store. The friend, after vainly attempting to read the note, suggested that they step inside and hand it to the druggist, without comment. The druggist, after studying it in silence for a few minutes, stepped behind his prescription case, and in a short time returned with a bottle of medicine, duly labelled and bearing directions. When the gentleman saw his lawyer, he was informed that the note was a notice for him to call at his office between three and four P. M. of the following day. It is a pretty difficult matter to "stick" the regulation druggist.

The Seventeenth Annual Session of the Medical Society of Virginia, will be held at Fredericksburg, Va,. October 26, 1886.

Hydrophobia in 1806.—It has recently come to light that the State of New York, in 1806, paid to John M. Crous a thousand dollars for a remedy against hydrophobia which he considered infallible. The measure was advocated by DeWitt Clinton and Chancellor Kent. This remedy consisted of one ounce of the jaw-bone of a dog, burned and pulverized; the false tongue of a newly foaled colt, dried and pulverized; and a "scruple of verdigreas," raised on the surface of old copper by laying it in moist earth. The warrant of the Comptroller on which the money was paid, and the receipt of Crous, are on file with other State papers at Albany.

The Male Nipple.—During the late war, at a period when the success of the Union cause was pretty well assured, President Lincoln was invited by some distinguished engineers of the army to inspect a plan which had been drawn for a very elaborate and expensive system of defence for the City of Washington. After examining the drawings attentively he inquired what was the necessity for the works. "The defence of the capital," was the reply, "in the contingency of a Confederate invasion." The President thereupon was reminded of a story of a debating society of a Western town, where the question was discussed, "Why does a man have breasts?" Several nights of debate failed to elucidate the problem until the matter was submitted to a referee, who decided "that if, under any circumstances, however fortuitous, or by any chance or freak, no matter of what nature, or by what caused, a man should have a baby, there might be breasts to nurse it."

President Grévy, now nearly eighty years of age, lost his first tooth the other day. The Paris journals mention the fact as an event, and *Le Voltaire* regards it as an event of grave political significance. "Good teeth," says *Le Voltaire*, "are essential to good digestion, and bad digestion have played a great *rôle* in the history of kings and rulers. It is lucky for us," it continues, "that President Grévy has such sound teeth. To that fact must be attributed his unchanging calm, his ataraxy, the perfect equilibrium of his physical and intellectual functions, which have made him the most prudent of statesmen, and the most constitutional of presidents."

The French Academy of Medicine Prizes for 1887.—The arrangements for the prizes offered by the French Academy of Medicine for competition during 1887 are as follows: The Academy Prize (10,000 francs): "Vaginal Hysterectomy, the Indications and Operative Procedures." The Argenteuil Prize (10,000 francs); this prize, which is sexennial, will be awarded to the author of the most notable improvement in measures for the cure of urethral strictures, or to the author of the best work on the treatment of other diseases of the urinary passages. The Barbier Prize (2000 francs) will be given to the discoverer of the most efficient means of curing diseases considered incurable, such as rabies, cancer, cholera, etc. "Encouragement" may be accorded to those who come nearest to attaining the object without actually accomplishing it. The Henri Buignet Prize (1500 francs) is for the best written or printed work on the applications of physics or chemistry to medicine. Foreigners are not allowed to compete for this prize. The Capuron Prize (1000 francs): "Post-partum Involution, the Changes and Pathological States which result." The Civrieux Prize (1000 francs): "Vesical Neuralgias." The Daudet Prize (1000 francs): "Actinomycosis." Authors must present original observations made in France. The Desportes Prize (1200 francs) for the best work on "Practical Medical Therapeutics." The Ernest Godard Prize (1000 francs), for the best work on "External Pathology." The Hygiene of Infancy Prize (1000 francs): "A Clinical Study of Athrepsia." The Laval Prize (1000 francs), for the most meritorious medical student. The Lefèvre Prize (2000 francs): "On Melancholia." The Auguste Monbinne Prize (1500 francs) is a fund to be expended for scientific missions, etc. The Portal Prize (600 francs): "On Primary Renal Tuberculosis." The Saint-Lager Prize (1500 francs), for experiments to produce goitre in animals by administering substances extracted from the water or earth of goitrous regions. The prize will not be awarded unless the experiments have been successfully repeated by the Academy's commission. The Vernois Prize (800 francs), for the best work on hygiene. Competing essays for all these prizes must be sent to the Academy before May 1, 1887, written in French or Latin, accompanied by a sealed envelope and a device to identify the author. The condition of concealment of the author's name does not apply to competitors for the Argenteuil, Barbier, Buignet, Desportes, Godard, Monbinne, and Vernois prizes.

A Bald and Toothless Future.—In the October number of the *Popular Science Monthly*, Mr. V. G. Eaton writes under this caption, and from his paper the following extracts are made:

In most of the Eastern cities, fully thirty per cent. of the men over thirty years of age show unmistakable signs of baldness, while nearly twenty per cent. have spots on their heads that are not only bald, but actually polished with the gloss that is supposed to belong to extreme old age alone. I have been in the majority of the churches and theatres in all the large Eastern cities, as well as in Chicago, St. Louis, and other places of the West, and have verified my assertion by actual count. From my observation I find that bald-headed men are most plentiful in New York and Boston. After these come Philadelphia, Washington, and the Western towns.

Here are a few observations taken in Boston. Trinity Church: 243 men; 71 actually bald, 46 indications of baldness. King's Chapel: 86 men; 38 actually bald, 14 indications of baldness. Hollis Street Theatre, orchestra, at performance of the "Mikado:" 63 men; 27 actually bald, 10 indications. Boston Theatre—Judic: 126 men; 51 actually bald, 43 indications.

These observations were taken from the more cultivated classes of society, and do not give a fair representation of the Boston head, as repeated calls at the dime museums and cheaper variety performances demonstrated. For instance, of the thirty men seen in the seats of the World's Museum in Washington Street, but eight were bald, while only five others had thin hair, showing that baldness was simply a question of a very few years. Again, of forty men at Austin and Stone's Museum, twenty-two had their heads well covered; and at the Windsor Theatre (variety) I found less than twenty-five per cent. who had thin hair.

On the other hand, at shows and entertainments of more refinement, the bald-headed element was considerably larger. Of two nights when Patti sang at the Boston Theatre there were forty-six per cent. of bald heads on one occasion, and forty-two on the other. When De Lussan appeared in "Fra Diavolo" I discovered thirty-eight per cent. of baldness, and at one of Matthew Arnold's lectures there were forty-six per cent. In fact, out of hundreds of observations, extending over several years, I have found that the higher the price of admission, and presumably the more refining nature of the performance, the larger the per cent. of bald heads. One night I counted the occupants of a few settees in my immediate vicinity at an exhibition which John L. Sullivan gave at the Mechanics' Fair Building, and was surprised to find that less than twelve per cent. of the men were bald. As this was a show where the spectators had the privilege of retaining or discarding their hats at pleasure, I think it was not a fair test.

The same rule can be applied to the early decay of human teeth, and with the same results. Old men now living tell of a time when dentists were almost unknown. The family physician used to keep a pair of forceps and tooth-keys to pull out such teeth as insisted on aching for an unreasonable length of time, while the idea of false teeth was so strange that the person who had a set was an object of curiosity for the whole neighborhood. Now nearly half the people over twenty years of age have one or both jaws occupied by artificial teeth, and the sign of the dentist occupies a conspicuous place on many a street corner.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from September 28 to October 4, 1886.

Gibson, Jos. R., *Major and Surgeon.*—Granted two months' leave of absence, from September 25, 1886, on surgeon's certificate of disability, in lieu of the unexpired portion of the ordinary leave of absence granted him in S. O. 158, A. G. O., July 10, 1886. —*S. O. 227, A. G. O.*, September 30, 1886.

Gardner, Wm. H., *Major and Surgeon.*—Ordered from the Department of Texas to the Department of the East.—*S. O. 227, A. G. O.*, September 30, 1886.

Wales, Philip G., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended to include November 5, 1886.—*S. O. 226, A. G. O.*, September 29, 1886.

Kendall, Wm. P., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month.—*S. O. 81, Division of the Pacific*, September 24, 1886.

Mason, Chas. F., *First Lieutenant and Assistant Surgeon.*—Ordered for temporary duty at Fort Verde, Arizona Territory.—*S. O. 90, Department of Arizona*, September 20, 1886.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending October 2, 1886.

Gutteras, D. M., *Passed Assistant Surgeon.*—To Receiving Ship "Franklin," for temporary duty, October 3d.

Wentworth, A. R., *Assistant Surgeon.*—Detached from the Navy Yard, League Island, and to the U. S. S. "Galena," October 1st.

Scott, H. B., *Assistant Surgeon.*—Ordered to Navy Yard, New York, October 1st.

Ashbridge, Richard, *Passed Assistant Surgeon.*—Detached from the U. S. S. "Swatara," October 1st. Granted six months' leave.

Berryhill, T. A., *Assistant Surgeon.*—Detached from the Museum of Hygiene, and ordered to Receiving Ship "Minnesota."

Arthur, George, *Passed Assistant Surgeon.*—Detached from the Navy Yard, New York, and ordered to the Museum of Hygiene.

Percy, H. T., *Passed Assistant Surgeon.*—Detached from U. S. S. "Galena," proceed home, and wait orders.

Shafer, Joseph, *Assistant Surgeon.*—Detached from the U. S. S. "Minnesota," and ordered to the U. S. S. "Swatara."

Steele, J. M., *Passed Assistant Surgeon.*—Detached from the Naval Academy, and granted six months' leave.

Biddle, Clement, *Passed Assistant Surgeon.*—Ordered to Naval Academy, Annapolis, Maryland.

Official List of Changes in the Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Week Ending October 2, 1886.

Purviance, George, *Surgeon.*—Granted leave of absence for twenty-five days, September 30, 1886.

Stoner, G. W., *Surgeon.*—Granted leave of absence for twenty-three days, October 1, 1886.

Carter, H. R., *Passed Assistant Surgeon.*—To proceed to Galveston, Texas, as an inspector, September 30, 1886.

Ames, R. P. M., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, to take effect when relieved, September 30, 1886.

Wasdin, Eugene, *Assistant Surgeon.*—Ordered to examination for promotion, September 30, 1886.

Brooks, S. D., *Assistant Surgeon.*—Granted leave of absence for thirty days, to take effect when relieved, September 30, 1886.

Williams, L. L., *Assistant Surgeon.*—Relieved from duty at Mobile, Alabama. Ordered to Marine Hospital, Wilmington, North Carolina, September 27, 1886.

Perry, T. B., *Assistant Surgeon.*—Relieved from duty at San Francisco, California. Ordered to Marine Hospital, St. Louis, Missouri, October 1, 1886.

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ORIGINAL ARTICLES.

SOME PHASES OF CEREBRAL SYPHILIS.[1]

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MR. PRESIDENT AND GENTLEMEN: It is to me a source of the greatest possible gratification to meet in this noble hall, and in the first city of your great continent, so many representatives of American medical science as are assembled here to-night; and you must allow me to thank you most heartily for the very kind and flattering reception which you have accorded to me. For many years past I have wished to cross the Atlantic, in order to make the personal acquaintance of many eminent colleagues who were already well known to me by reputation; and to learn something of the aspects of American medicine in your hospitals and universities.

I am not one of those who consider the old world to be effete and played out—sclerosed, as it were, through loss of nerve-cells and the undue proliferation of the lower tissues—unable to do much further original work, either in our own field of labor or in other cognate departments of research; yet I have felt at once, on my arrival amongst you, that in this new world of yours, of which I have as yet such a short experience, the air is fresher and keener, the minds more open and unprejudiced, the desire for greater and better knowledge more eager—in fine, the gray matter of the cortex more on the alert than in some parts of Europe, where the old conservative notion of "rest and be thankful" prevails to an undue extent, and where anything that is new is pretty sure to be looked upon with suspicion in leading circles, simply on account of its being new. Personally, gentlemen, I cannot help feeling it a special privilege to address you to-night under the presidency of my old friend and fellow-student, Jacobi, whom I first met, now thirty-six years ago, in Germany at the University of Bonn-on-the-Rhine. I trust that on this occasion your eminent President, as well as yourselves, will extend to me that kind indulgence which I now make bold to claim at your hands as your visitor to-night.

The fact that the structure and functions of the brain may be peculiarly and specifically affected by the syphilitic virus, seems to have escaped the acumen of the old masters in our profession. When syphilis first appeared in Europe, toward the end of the fifteenth century, and for a very long period afterward, the terrible external manifestations of this appalling disease engrossed the attention of medical practitioners to an unusual degree; nor were these symptoms of the malady of France unknown to the laity. Thus Shakespeare's Timon says to the two courtesans, Phrynia and Timandra:

> "Give them diseases! bring down rose-cheek'd youth
> To the tub-fast, and the diet. . . . Consumption sow
> In hollow bones of man; strike their sharp shins,
> And mar men's sparring. Crack the lawyer's voice,
> That he may never more false title plead,
> Nor sound his quillets shrilly: hoar the flamen,
> That scolds against the quality of flesh,
> And not believes himself; down with the nose,
> Down with it flat; take the bridge quite away
> Of him, that his particular to foresee,
> Smells from the general weal; make curl'd pate ruffians bald,
> And let the unscarr'd braggarts of the war
> Derive some pain from you; plague all,
> That your activity may defeat and quell
> The source of all erection."

While the clown in Hamlet, in the gravedigging scene, says in answer to the question how long a man will lie in the earth ere he rot, that he will last for eight or nine years—

> "If he be not rotten before he die,
> As we have many pocky corses nowadays
> That will scarce hold the laying-in."

While, therefore, impotence and disease of the cranial bones were thus early stated to be a result of syphilis, yet nothing was known for a long time about any specific disease of the viscera, and more especially of the brain and spinal cord, as arising from venereal infection. When it, however, eventually became obvious that some nervous complaints, such as paralysis, epilepsy, and insanity, frequently occurred in those who had previously suffered from the more ordinary forms of constitutional syphilis, this was explained by that convenient figment, a metastasis having taken place from the skin and mucous membranes to the brain, whereby the latter suffered, without being actually diseased.

This fantastic view of the matter, however, did not commend itself to the clear intellect of such men as Hunter and Astley Cooper, who, on the contrary, stated plainly that the brain as well as the other internal organs were insusceptible to the venereal poison. This latter doctrine held the field for a very considerable time, as may be seen from a perusal of the works on diseases of the nervous system which appeared in the first half of the present century. Thus I find that Abercrombie, in his work on the diseases of the brain and spinal cord, which was for many years the great authority on nervous affections, and the first edition of which appeared in 1828, never once mentions the word syphilis at all. In speaking of the causes of brain diseases, the Edinburgh professor alludes to continued fever, and the exanthemata; injuries to the head; suppressed evac-

[1] Read before the New York Academy of Medicine, October 7, 1886.

uation of certain secretions, such as the catamenia and the urine; scrofula, passions of the mind, stimulating liquors, and exposure to the intense heat of the sun. *Voila tout.*

The same remark applies to the works of Sir Charles Bell, Marshall Hall, and Romberg. In the clinique of the latter in Berlin, which I frequented assiduously in 1853 and 1854, and where I had the opportunity of seeing a large number of cases of all kinds of nervous diseases, I remember only a single instance where that great master allowed syphilis to have been the cause of the patient's illness; and that was a case of paralysis of the third nerve, which was stated to be due to syphilitic periostitis at the base of the skull. In 1854 and 1855, I likewise attended the syphilitic cliniques of Von Baerensprung at Berlin, and of Sigmund at Vienna, and saw numerous cases of primary and secondary affections, but not one of cerebral or spinal syphilis. Nor did the great leaders of the Vienna school of medicine, such as Skoda and Oppolzer, whose teaching I followed in the winter 1855–56, draw attention to this subject in their otherwise admirable clinical lectures. Canstatt's text-book on special pathology and therapeutics, which was at that time in the hands of almost every student of medicine in Germany, and also constituted the principal guide of the practitioner, was likewise absolutely silent on this subject in the chapter on nervous diseases; while in that on syphilis the practitioner was actually cautioned not to believe in such a thing as syphilis of the brain—a most astounding statement when we consider that perhaps eighty per cent. of all cases of brain diseases which occur in patients between twenty-five and forty years of age are actually owing to that disorder! The same ideas prevailed in France, where Trousseau and other masters whose wards I frequented in the summer of 1855, never mentioned cerebral syphilis at all, and invariably attributed any nervous symptoms in syphilitic patients to cranial periostitis.

The only man who about that time knew that the brain was liable to specific disease was Professor Waller, of Prague, whose lectures I attended in the summer of 1856. He told his hearers then that he had seen red and white softening, and a deposit of solid effusions in the white as well as the gray matter of the brain. According to him, the symptoms during life were indistinct, and we could only diagnosticate cerebral syphilis where the patient suffered at the same time from external manifestations of the disorder. He had known patients in the later stages of the disease to suffer from epilepsy, paralysis, and mental hebetude; but the brain might also suffer at an early period, synchronously with the ulcerated throat, and he had seen cases in which a most violent form of headache was the principal symptom, and where, in spite of active treatment, the patient had died comatose. I believe that these observations of Waller's have never been published, and what I have just mentioned is culled from notes which I took at the time his lectures were delivered.

With this solitary exception, then, all that was taught until a comparatively recent time on this subject was, that syphilis might produce an affection of the dura mater analogous to that of any external periosteum; that the membrane might become inflamed, and an intracranial node be formed, which would irritate the surface of the brain, and might give rise to neuralgic, convulsive, and paralytic symptoms. Cases of this kind have been described, amongst others, by Sir Philip Crampton, Graves, and MacDowell, of Dublin, by Reade, of Belfast, and by Todd, of London.

A new era in the history of our subject began with the great impetus which was about that time given to the study of pathological anatomy. Amongst the many successful workers in this most attractive field of research, two men stand forth conspicuously, so far as our subject is concerned, viz., Virchow, whose investigations cleared up the nature of syphiloma of the brain and its membranes (1869), and Heubner, who gave us a clear insight into the syphilitic alterations which are apt to occur in the cerebral arteries (1874). These researches may, each in its own way, be considered as landmarks in the history of cerebral syphilis. The foundations of the doctrine were now securely laid, so as to be beyond cavil; and it became clear that, although subsequent work might amplify our knowledge in this respect, it could no longer reverse what was once firmly established.

The salient feature of this work is, that the peculiar and specific alteration which occurs in the brain as a consequence of constitutional syphilis, is not inflammation, but that it bears throughout the character of a neoplasm. A foreign tissue is apt to be deposited in the dura mater, the subarachnoid space, or the cerebral substance, and forms the several kinds of tumor known as syphiloma or gumma. Apart from this, however, there occurs a special disease of the cerebral arteries, which likewise appears in the form of a neoplasm, inasmuch as a deposit takes place between the endothelium and the elastic fibres of the vessel, whereby its diameter is at first reduced, and the lumen eventually completely blocked up by thrombosis, causing ischæmia, starvation, and softening of the area of cerebral tissue which is supplied by the suffering vessel. Syphiloma and arterial thrombosis cover indeed the immense majority of cases of cerebral syphilis which are met with in practice. There remains a residuum of cases in literature in which no structural change could be discovered after death, and in which the symptoms were generally attributed to congestion; it is, however, a suggestive fact that during the last ten or fifteen years, during which the finer methods of microscopic research have been so much improved, the record of such cases has almost ceased; and it therefore appears probable that one or the other of the two fundamental lesions which I have just mentioned, and their consequences, may in the future be generally found to exist in fatal cases of this description; while in many of those which do not prove fatal, I believe anæmia rather to be the cause of the symptoms than congestion, to which it is usually attributed.

While, therefore, Virchow's and Heubner's work must be looked upon as epoch-making in the pathology of cerebral syphilis, correspondingly good clinical work has been done elsewhere. I shall probably not be contradicted when I say that Fournier's book, *La Syphilis du Cerveau*, which ap-

peared in Paris in 1879, has very greatly extended our acquaintance with the more common, as well as the more unusual, clinical forms of brain syphilis. Fournier has distinguished six different forms, viz., the cephalalgic, the congestive, the convulsive or epileptiform, the aphasic, the mental, and the paralytic; and his description of the symptoms which occur in these several forms is more minute and exhaustive than any other which had been given before, and will on that account always remain a monument of able and painstaking industry. A disappointing feature of Fournier's work is that he does not generally point out clearly the connection which exists between clinical signs and pathological lesions, and appears to be only slightly acquainted with the modern doctrine of cerebral localization, which in this department of clinical medicine finds its most interesting and striking practical applications.

I now proceed to the more particular object of my paper, which is to draw your attention to some manifestations of cerebral syphilis with the peculiarities of which we are as yet imperfectly acquainted. Time will only allow me, on this occasion, to revert to two amongst the numerous subjects which crowd on one's attention in thinking of brain syphilis, and those which I have selected are syphilitic coma, and syphilitic hemiplegia.

That coma, coming on more or less suddenly in an apparently healthy man, or in one who shows at the time unmistakable symptoms of venereal disease, may be a manifestation of this latter distemper, is not generally known in the profession. We are all familiar with uræmic, alcoholic, and diabetic coma, with the coma of cerebral hemorrhage, and that of opium poisoning; with that which occurs after the epileptic fit, with or after severe hysterical and hystero-epileptic convulsions; after prolonged exposure to extremes of temperature, whether of heat or cold; after erysipelas of the face and head; from compression of the brain by a depressed fracture of the skull, by extravasated blood, meningitis, and the presence of pus and other products of inflammation. Nor must we forget that several chronic affections of the nervous system, more especially tabes spinalis, and general paralysis of the insane, are apt, toward their termination, to be attended by attacks of coma. Most of these conditions are described in the text-books, while syphilitic coma is not even mentioned. Fournier is almost the only author who has pointedly alluded to this condition, and related an example of it which occurred in his practice. A knowledge of syphilitic coma is, however, of great practical importance, inasmuch as it requires an entirely different treatment from that of other forms of coma; and an incorrect diagnosis is, in such a case, likely to seal the fate of the patient.

I have seen altogether eight unmistakable cases of syphilitic coma. They all occurred in males between twenty-five and forty-two years of age. In every one of them there was a definite history of primary and secondary syphilis; in four there was at the time a specific rash on the scalp, and other portions of the skin; and in one an ulcer on the tongue. In one case the coma appeared eight months after infection; in six, between three and five years; and in one case seventeen years afterward. In two cases no other cerebral symptoms had occurred before the coma, while six other patients had at various times suffered from giddiness, epileptiform convulsions, and transient loss of power in the limbs.

Amongst the exciting causes of the attack I have noticed overwork, anxiety, trouble, and sexual and alcoholic excesses. In two cases no exciting cause whatever could be ascertained. Six of the patients were professional men, and two were men without any regular occupation.

The symptoms of syphilitic coma, I venture to classify as 1st, premonitory signs; 2d, symptoms of the initial stage; and 3d, symptoms of the final stage of coma.

A. I have noted the following premonitory symptoms of the attack of coma: headache, a feeling of confusion and drowsiness; indistinct utterance; a perception of black specks floating before the eyes, with sudden loss of sight for a short time; numbness of the limbs, and some loss of muscular power. In six cases such symptoms occurred either a few hours, or a day or two before the attack, while in two other cases they appeared to have been entirely absent.

B. The initial stage of syphilitic coma appears to set in habitually during sleep; the patient being discovered by his friends or servants in the morning in a state of apparent insensibility, from which he cannot be roused. He is lying quietly on his back, apparently quite unconscious, and, as it were, in a profound sleep. He is evidently not suffering any pain; he does not moan, threw himself about, or put his hand to his head. The face is absolutely devoid of expression; there is a complete blank, and no distortion of the features. The complexion is generally pale. Sometimes he can be roused by shouting to him; he may speak a word or two, and appears to recognize the voice of a friend better than that of a stranger. When asked whether he can see you, he may answer that he is blind. When requested to put out his tongue, he is seen to make an effort to do so. Sometimes the only response is a movement of the lips, at other times the tip of the tongue is protruded, which is then seen to be dry, and covered with whitish fur, through which some few red papillæ are seen to project; but it shows no lateral deviation. When food is put into his mouth, the patient makes an effort at deglutition, and generally succeeds in swallowing small quantities of fluid. The eyes are closed. On opening the lids the eyeballs are seen to be deeply retracted into the orbit, one sometimes more so than the other; and they are seen to diverge somewhat in their direction, which imparts to them a peculiarly dazed and stupid expression. The deeper the coma, the greater, *cæteris paribus*, is the degree of divergence. The pupils are small, and insensible to light. On account of the position of the eyes, an ophthalmoscopic examination is generally not practicable, but reveals nothing unusual when practised. The reflex excitability of the conjunctivæ is either very much blunted or entirely gone. The breath is sometimes offensive.

The muscles of the limbs and the body are in a state of perfect relaxation. The body will retain

any position which is given it. On lifting the arms or legs, no resistance is encountered; and on releasing them, they drop back heavily by their own weight, like inanimate matter, as in a dead body from which rigor mortis has disappeared. There is no difference at all between the two sides of the body; no appearance of hemiplegia, or rigidity, or tremor, but a dead level of paralysis, with complete loss of muscular tone, everywhere.

Sensibility and reflex excitability are greatly diminished, or quite gone. I have already mentioned that the conjunctival reflex is lessened or absent, and that there is no light reflex in the pupils. Tickling the soles or the knees produces no withdrawal of the legs; but on smartly pricking the skin with a pin, there is generally a slight response. Where the coma is not very deep, the patient may express by a grunt his dislike of the proceeding. The deep reflexes or tendon phenomena are either absent, or can be elicited only with considerable difficulty, and then appear slight and sluggish.

There is either from the first or very soon, incontinence of the excretions, especially of the urine, which is apparently secreted much in the usual manner, and dribbles away as it reaches the bladder, through paralysis of the sphincter. The feces are also apt to come away involuntarily, but occasionally there is obstinate constipation, which only yields to powerful purgatives or enemata, and the evacuation then takes place in bed, the patient having no sensation of its coming away and being unable to give a warning.

The pulse is habitually slow, beating at the rate of 40, 50, or 60 in the minute. In one case I have known it to go down to 36, while in another it was 86. The quality of the pulse varies in the different cases: it may be hard and wiry, showing the sphygmographic signs of increased tension, or tolerably full, or small and feeble, when the sphygmograph indicates low tension.

Respiration is slow and shallow, the excursion of the chest-walls and diaphragm being insignificant. The rate of inspirations varies like that of pulsation, but is generally less than in health. The average rate appears to be from eight to ten.

The temperature is below the average, and ranges habitually between 96° and 97°. In one case I have known it to go down to 95°.

In two cases there was an eruption of herpes on the face, large groups of vesicles being formed on inflamed patches on both cheeks. On the first day the liquid was clear; on the second it became opaque, and the epidermis then gradually peeled off in small patches. Otherwise the skin is generally dry, there being little or no perceptible perspiration.

What is the condition of the brain in the cases which I have just described? It is evidently a complex one, for while we have, on the one hand, symptoms of paralysis, there are, on the other hand, signs of irritation of the nervous centres. The loss of consciousness, and of voluntary motion and sensation, shows that the function of the cineritious substance of the hemispheres, and notably that of the frontal and temporal lobes and of the central convolutions, is in abeyance; while the state of the pulse, respiration, and temperature shows that the cardiac, vasomotor, respiratory, and thermic centres in the medulla oblongata and the pons Varolii are in a state of irritation. Such a coincidence of paralysis and irritation is by no means so singular as it might appear at first sight, if we consider the various degrees of excitability which exist normally in different portions of such a highly complex organ as the brain is known to be. Of all parts of the encephalon, the gray cortex is the most highly vitalized, and the one that requires the most active circulation of the blood, the most incessant supply of oxygen, in order to be able properly to discharge its function. Any interference with the supply of arterial blood to the cortex, however temporary, acts like a blow with a hammer on a magnet—that is to say, it destroys its function for the time being by suddenly disturbing its molecular condition. In poisoning by carbonic acid there is at first a short stage of irritation of the cortex, shown by headache, giddiness, and noises in the head, but this is rapidly succeeded by depression, consciousness being lost and a state of coma induced. At this time, however, there is still irritation of the medulla, shown by a slow pulse, increased blood-pressure, and convulsions, and this stage is only eventually succeeded by paralysis, when respiration becomes feeble, the blood-pressure falls, and death results from apnœa. That in patients suffering from syphilitic coma there may be a short stage of cortical irritation, is rendered probable by the premonitory symptoms which I have mentioned, such as headache, giddiness, and a feeling of confusion.

A coincidence of depression and irritation may be observed in much less complex structures than the brain. Thus we have in the early stage of an acute attack of sciatica, whether of rheumatic or traumatic origin, on the one hand, symptoms of depression, viz., numbness in the foot and loss of power in the muscles supplied by the sciatic nerve; and, on the other hand, concurrently with them symptoms of irritation, viz., acute pain in the whole or part of the limb, and convulsive twitches in the muscles which are under the influence of the suffering nerve.

That there is irritation of the lower centres in the first stage of syphilitic coma, seems to me to be proved by the slow pulse, the increase of blood pressure which is present in the majority of cases, the retarded respiration, the lowered temperature, and finally by the state of the pupil and of the ocular muscles. There is a centre for these latter parts in the posterior portion of the floor of the third ventricle and the aqueduct of Sylvius, and therefore in intimate connection with the upper portion of the pons Varolii, which has been shown by Hensen and Voelcker to have definite relations to the iris and the other muscles of the eye. Irritation of this centre would explain the contraction of the pupil, and the different forms of ocular spasm which are found to be present in syphilitic coma; just as paralysis of the same centre is known to lead to the different forms of ophthalmoplegia.

The initial stage of syphilitic coma lasts, in general, from two to five days; and is followed either by recovery, or merges into the final stage which leads to death. In the former case the patient gradually

begins to show signs of returning consciousness; he opens his eyes from time to time, moves them about in different directions, and recognizes the people about him. He regains command over the sphincters, and calls the nurse when desiring to pass his excretions. The power of swallowing is improved; he begins to take food with some amount of relish, recovers his muscular power, sits up in bed, has natural refreshing sleep followed by wakefulness, and presently wants to get up and begins to go about again. In ten days or a fortnight, he may apparently be well, and able to resume, at least to some extent, his previous occupation.

In other cases recovery is more slow and imperfect. The speech remains indistinct and halting, the memory is weak. An hour after having seen a person, or read a newspaper, the patient remembers nothing about it. The power of moving the eyes freely remains impaired. He does not seem to take much interest in his affairs, or show much affection for his family. At times, however, he appears to realize his position acutely and bursts out crying, while at other times he is absent-minded and drowsy.

> "All is but toys; renown and grace is dead;
> The wine of life is drawn, and the mere lees
> Is left this vault to brag of."

Eventually, however, even in these less favorable cases, the brain power may be more or less restored, showing but little deterioration compared with what it was previous to the attack.

This is the bright side of the picture, and as recovery generally takes place in consequence of an energetic specific treatment, the doctor may well take credit to himself for having saved his patient's life or reason. But there is also a darker side, since in some cases all the resources of our art prove unavailing. The patient then, after having been for a few days in the condition previously described, gradually sinks into what I propose to call the *final stage* of syphilitic coma.

This stage is characterized by an intensification of the symptoms of unconsciousness, loss of voluntary power, sensation, and reflex excitability; while the signs which I have referred to irritation of the pons and bulb, now pass into such as denote a paralytic state of these organs. The face is livid and cyanosed; the conjunctivæ are injected, covered with shreds of mucus, and insensible to touch or irritation. The mouth is wide open, from paralysis of the masseter muscles, causing the lower jaw to drop. The breath is fetid; the power of swallowing lost. There is either excessive secretion of buccal mucus, or great dryness of the lips, tongue, and cavity of the mouth, which are often covered by sordes. The surface of the body is bathed in clammy sweat. The pulse, where it has been hard and wiry, rapidly loses that character, and becomes small, feeble, and very quick, going up to 140, 180, or more. It eventually cannot be counted, and shows sphygmographically the characters of collapse, there being only a very slight elevation followed by a proportional depression, but without waves, aortic notch, or dicrotism. Respiration, from having been retarded is now accelerated, with thirty to forty or more inspirations per minute. It may become stertorous, and pass into the Cheyne-Stokes type, or neurolytic catarrh of the air-passages sets in, with excessive secretion of bronchial, tracheal, and laryngeal mucus, while on auscultation râles are heard all over the chest. This may pass into hypostatic pneumonia, when the mucus becomes tinged with blood. At the same time the temperature is found to rise from 95° or 96° to 104° or 108°. The pupils become enlarged, and show their maximal dilatation at the moment of death. Eventually the face assumes the Hippocratic expression, and is occasionally so altered within a few minutes that the patient's friends have difficulty in recognizing him. This stage generally lasts from twenty-four to thirty-six hours, and terminates in dissolution; the patient passes away to

> "The undiscovered country from whose bourne
> No traveller returns."

Of the eight cases of syphilitic coma which have fallen under my observation, six ended in recovery and two in death in the first attack. In three of those who recovered from the first attack, however, relapses took place after some time, and one of these latter patients eventually died, after having survived five such attacks in three years.

I regret to say that I was not allowed to make a necropsy in either of the two fatal cases; and I am therefore unable to describe to you the exact lesion which caused the illness and the final result. Reasoning from analogy, however, it seems to me highly probable that we have in these cases to do with an affection of an important cerebral artery, which becomes gradually occluded by specific deposit in the way so clearly described by Heubner; and that the vessel principally implicated is the basilar artery.

The basilar artery gives branches to the cerebellum, pons, and medulla oblongata, and terminates in the A. cerebri profunda, thus supplying the vitally most essential parts of the brain; and it is obvious that an interruption of the blood supply by this vessel must lead to a profound alteration of the parts nourished by it. Sudden occlusion of this artery by acute inflammation or deposit leads rapidly to a fatal result, the principal symptom being profound coma from the beginning of the illness. Hayem has recorded the case of a woman, aged thirty-three, who was brought into the hospital in a comatose state, in which she had been found at home shortly after having been seen engaged in her usual occupations. This patient died in twenty-one hours. The autopsy showed acute inflammation of the basilar artery; all the coats of the vessel, but more especially the internal one, being much thickened, and in one place so much so that the lumen of the vessel was entirely occluded. There were hyperæmia, swelling, effusion, and abundant production of young cells and nuclei. Where the vessel was not occluded by inflammation it was filled with a thrombus, part of which was soft and pinkish, while another part was hard and resisting, the clot being apparently due to rupture of the internal coat of the artery through the effusion, after which the blood had become coagulated and mixed with the broken-up structures. The brain matter was firm, with the exception of the

pons, which had a pasty consistency, more especially in its lower portion, which is in direct connection with the basilar artery; but there was no actual softening. Indeed, there had been no time for the production of such a change.

Similar cases have been seen by Vulpian, Martineau, Gougenheim, and Bastian. The case of the latter observer was that of a watchman, aged forty-three, who had been apparently in his usual health, and was suddenly taken with coma, which proved fatal in less than six hours. After death there was found an aneurismal dilatation of the posterior half of the basilar artery, which was perfectly occluded by a soft, colorless clot, uniformly adherent to the aneurismal walls. The middle cerebellar arteries were in connection with the aneurismal swelling, and likewise occluded. Otherwise nothing of importance was discovered in any one of these cases; and the symptoms which were present are indeed well explained by the sudden anæmia induced in the vasomotor, cardiac, and respiratory centres in the pons and bulb through the basilar artery becoming impervious. The only difference between the cases of acute inflammation and of sudden coagulation, on the one hand, and those which I have described as such of syphilitic coma, on the other hand, appears to be the extreme rapidity of the course of events in the former class, while this is much slower in the latter. When a specific deposit takes place in the basilar artery, therefore, it seems that much more time is required for producing occlusion of the vessel than is the case in ordinary inflammation, or thrombosis. For the same reason I should expect that, in addition to the occlusion of the vessel in a fatal case, there would also be found some degree of softening in the pons and bulb. While, therefore, there appears good reason to believe that syphilitic coma is due to specific disease of the basilar artery, I admit that this view still stands in want of corroboration by actual inspection.

The diagnosis of syphilitic from other forms of coma is sometimes easy, and sometimes extremely difficult. The history and attendant circumstances of the case must guide us in the recognition of such conditions as coma from exposure to extremes of temperature, from injury to the head and meningitis, from erysipelas of the face, etc. The coma which accompanies ingravescent apoplexy from cerebral hemorrhage, occurs habitually in men past fifty years of age, while syphilitic coma occurs either in young men, or in those in the prime of life. Moreover, there are in the former habitually the well-known symptoms of hemiplegia, which are absent in syphilitic coma. The cases most likely to be confounded with the latter are those where hemorrhage takes place into the pons, causing great contraction of the pupils, retraction of the eyeballs into the orbit, and paralysis of all four extremities. In such cases the question likewise arises whether we may not have to do with opium-poisoning. In endeavoring to decide these questions we must remember that in syphilitic coma the pupil is not extremely contracted, while in opium-poisoning and hemorrhage into the pons it is so to the utmost possible limit. Where laudanum has been taken, this may be smelt in the breath; and if the unconscious patient be seen to scratch himself vigorously, we would conclude for opium, itching being a frequent symptom of poisoning with it. Finally, in opium-poisoning there is retention of the urine, with a full and often greatly distended bladder, which sometimes reaches up into the epigastrium, while in syphilitic coma the bladder is empty, and the urine found to dribble away as it is secreted.

The coma which follows an epileptic fit, and severe hysterical and hystero-epileptic convulsions, is habitually of a much shorter duration than syphilitic coma. Moreover, the epileptic fit, even where it has not been witnessed, leaves evidence in a bitten tongue, foam at the mouth, and petechiæ of the face. The history of the case may also be of use. A young woman was admitted a few months ago into the hospital under my care in a comatose condition, and the mother stated that the girl had had fits, and had for some time past been unable to feel anything in her left side. Here we had, therefore, to do with hemianæsthesia in a young woman, and fits which led me as such to suspect hystero-epilepsy; and this was confirmed by the further progress of the case. In this instance the coma lasted for thirty-six hours.

Alcoholic coma occurs frequently in the London docks, where the men who are employed there are apt to develop a craving for sucking raw spirit from a barrel through a straw, until they fall down dead drunk; and, if discovered near the barrel in this state, the diagnosis is indeed readily made. But under other circumstances difficulties may arise. The smell of alcohol in the breath is of very little diagnostic use, as a man beginning to suffer from the first effects of cerebral hemorrhage is apt to take brandy for reviving himself, or is given it by sympathetic bystanders. More trustworthy information may be obtained from the urine. When small doses of alcohol are taken, this is eliminated partly by the breath, and partly undergoes combustion in the blood and tissues, and can therefore not be discovered in the urine; but large doses, such as are sufficient to produce coma, are eliminated unchanged by the urine; so that, if the latter be found to have an alcoholic smell, this is enough to establish the diagnosis. The temperature is generally lowered in alcoholic coma, but rarely more than one or two degrees, so that, for instance, a temperature of 95° would speak against it. Another important sign is that the pupil is enlarged in alcoholic coma, while in syphilitic coma it is small.

The diagnosis of uræmic coma will be easy where the history of the case is known; but where it is not, difficulties may be experienced. This kind of coma may occur quite suddenly, without any premonitory signs, for the patient may fall down unconscious while writing at his desk, or driving in a carriage. In general, however, it is preceded by headache and vomiting, and occasionally by defects of sight and hearing; after this, epileptiform convulsions set in, and leave the patient comatose. The breathing is then stertorous, and the pupils are dilated. The patient may then recover for a time, but is seized again by a fit, and becomes

once more comatose. It is, therefore, seen that in uræmia we have to do with fits and remissions, and that there is not that dead level of unconsciousness as in syphilitic coma. Anasarca is frequently present; there is generally no incontinence, but retention of the urine, which is scanty, and if a specimen be obtained, it is found to contain albumen and tube-casts. Finally, the presence of urea can be shown in the blood by raising a blister, evaporating the serum which is effused, treating the residue with alcohol, and then adding a few drops of nitric acid, when crystals of nitrate of urea will be formed.

Finally, how are we to distinguish syphilitic from diabetic coma, or, as it is sometimes called, Kussmaul's coma, or acetonæmia? About one-half of the patients who succumb to diabetes, die comatose; and as the coma sometimes sets in quite suddenly, and apparently without any warning, Prout, and Frerichs after him, were quite justified in saying that the diabetic lives habitually on the brink of a precipice. There are three different kinds of diabetic coma. The most common is that with which Kussmaul's name is connected, and which occurs chiefly in young persons, and where the course of the disease is rapid. This is sometimes ushered in by epigastric pain, vomiting, diarrhœa, or obstinate constipation. The patient is then seized by a peculiar form of dyspnœa; he lies gasping for breath, respiration being very much accelerated, while the respiratory movements are free, and the air-passages pervious. The breath has a peculiar odor, like cider, apples, or chloroform, which is owing to the presence of acetone in the expired air. The urine is abundant and contains sugar; in almost all cases it likewise shows a peculiar reaction with perchloride of iron, which imparts to it a deep reddish or Burgundy color, which disappears on heating or acidulation. This reaction is generally owing to the presence of aceto-acetic acid in the urine. This acid, however, is a very unstable compound, and easily splits up into acetone and carbonic acid, so that acetone is also habitually found in the urine. It appears probable that, besides these two substances, there are other poisons present in it, more particularly diacetic ether, trimethylamine, and beta-oxybutyric acid, which are formed in the blood in consequence of the abnormal tissue-changes, and poison the nervous centres unless they can be quickly eliminated. In consequence of this, the patient becomes drowsy, and there may be at the same time a restless delirium. There are sometimes remissions, but eventually the coma deepens. The pulse is quick; the temperature normal, subnormal, or very low indeed—down to 90° in the rectum. The pupils are sluggish, the surface of the body is cold, and death is sometimes preceded by convulsions. The peculiar form of dyspnœa, and the presence of acetone and its allies in the breath and urine, are sufficient to guide us in our diagnosis of these cases.

There are, however, two other forms of diabetic coma, the knowledge of which we owe chiefly to Frerichs and Dreschfeld. The first of these is what may be properly called diabetic collapse. It occurs more in elderly persons, especially when they are stout and subject to gout and nephritis, and after they have been diabetic for some considerable time. There are the usual symptoms of collapse, which soon passes into coma and death; and the condition is probably owing to fatty degeneration of the heart and sudden failure of its action, especially after overexertion or excess.

The last form of diabetic coma, and which is only rarely met with, is that where there is a first stage of excitement resembling that of alcoholic intoxication, and which is, after a time, succeeded by coma and death. In these cases acetone has also been discovered in the urine, and in one of them large quantities of alcohol were found in it, although it was ascertained with certainty that the patient had not taken alcohol in any form or shape. These latter two kinds of diabetic coma cannot therefore possibly, on account of the great dissimilarity of symptoms, be confounded with syphilitic coma.

The *prognosis* of syphilitic coma is always grave. Although it is not by any means as hopeless as that of uræmic and diabetic coma, which almost invariably prove fatal, yet there is proof that the terribly subtle and rancorous poison of syphilis has insinuated itself into the cerebral arteries; and even if neutralized by treatment for a considerable time, will probably sooner or later return to the attack, and eventually overcome all resistance. The prognosis of the individual attack is, however, on the whole, not very unfavorable, more especially if specific treatment is resorted to in the beginning. My two cases in which the first attack proved fatal, had been treated simply with stimulants until symptoms of paralysis of the pons and bulb had supervened, so that they were practically hopeless at the time the specific treatment was commenced. What is likely to occur after the patient has recovered from the attack, depends to a great extent upon the degree of perseverance with which he may allow a specific treatment to be carried out. Some patients are averse to swallowing medicine unless they are at death's door, and give up treatment as soon as they feel tolerably comfortable. For these the prognosis is of the worst description; for they are certain either to succumb to a similar attack sooner or later, or to end their days in a madhouse as general paralytics. Where, on the contrary, a patient will submit to two years' consecutive treatment for the distemper under which he is laboring, he appears to have a fair chance of escaping further trouble from this source.

The *treatment* of syphilitic coma should be partly symptomatic, and partly specific. Systematic feeding with easily digestible substances, more especially milk, chicken broth, beef tea, and small doses of alcohol, is of the greatest importance. The food may be peptonized if considered advisable. If the patient should appear in imminent danger of death, hypodermatic injections of ether sometimes turn the balance in his favor. I once injected forty minims at a time, with the result that the patient rallied almost immediately. The average dose is twenty minims three or four times a day. Ammonia has appeared to me of little use in this condition. Blistering the back of the neck or the forehead, however, seems sometimes to be beneficial. Ice or other

cold applications to the head are unnecessary where the temperature is normal, and hurtful where it is diminished; while in the later stages of the complaint where the temperature runs up very high, I have found them quite useless. The cold douche which is often so beneficial in the coma of meningitis, has appeared to me to do more harm than good in some of the cases now under consideration, while in others it scarcely seemed to warrant the trouble which was required for administering it.

The principal part of the treatment is the specific one by mercury, which should for obvious reasons be administered either by inunction or by hypodermatic injection. For inunction we may use the old-fashioned blue ointment, which is probably, after all, the most effective of all external applications, as mercury appears in the urine after a single inunction of one drachm, which contains twenty grains of metallic mercury; or the oleate may be used, containing ten, fifteen, or twenty grains of the yellow oxide for an application. Three inunctions of this are, however, required for showing mercury in the urine. The yellow oxide may also be rubbed up with lanolin, and seems to be rapidly absorbed in this combination. For hypodermatic injections I consider the perchloride to be the most effective preparation, and this should be injected deeply into the substance of the glutæi muscles, in order to avoid irritation and the formation of abscesses, which is so apt to occur when this remedy is injected into the subcutaneous areolar tissue. We may, however, also use the albuminate, the peptonate, the cyanate, and the foramid of mercury, in doses of one-sixth to one-third of a grain, once a day.

Time warns me that I shall have to bring my remarks to a close, and I will, therefore, at once proceed to the second portion of my discourse, which will treat of some of the clinical peculiarities of syphilitic hemiplegia as compared with ordinary hemiplegia.

The symptoms of the ordinary attack of hemiplegia, owing to hemorrhage into the central ganglia or embolism of the Sylvian artery, are rarely reproduced in the attack which is owing to syphilitic infection. While, in the former, we meet with the well-known symptoms of apoplexy to which more or less complete motor paralysis of one side of the body is added, we find in the latter a number of different types, which all show great variations from one another, as well as from the non-specific attack of hemiplegia. There are, however, some features which all these several types have in common, viz:

1st. The immense majority of the patients are males, according to my experience ninety-five per cent., while both sexes suffer about equally from ordinary hemiplegia.

2d. The patients are young or comparatively young subjects, viz, between eighteen and forty years of age:

> "For in the morn and liquid dew of youth
> Contagious blastments are most imminent."

3d. They show a peculiar behavior of the deep reflexes or tendon phenomena, which has not been previously described, and to which I shall presently refer in a more pointed manner.

One of the several types of syphilitic hemiplegia is shown by the case of a clerk, aged twenty-eight, who was under my care at the hospital in November, 1884. This young man told me that he came from a healthy stock, but had, for many years past, committed excesses in drinking, smoking, and sexual indulgence; that he had had gonorrhœa half a dozen times, and a hard chancre, followed by specific eruptions, four years ago. After that he continued apparently quite well for three years; but unquestionably that terrible bacillus was breeding in his lymphatic system all the time, for he found one day that his left eyelid drooped, and that he had difficulty in seeing with the left eye. At that time he happened to be in Australia, and six months afterward took passage home. He had been on board ship for a fortnight, and never thought that there was anything the matter with him, when, one day, while sitting on deck, he experienced a feeling of faintness and giddiness; there was no loss of consciousness or language, no headache or sickness, no incontinence of the excreta, but he had a strange feeling of loss of power gradually stealing over his right side, and in half an hour found that he could not use his hand, and that he walked lame. The paralysis was incomplete, for he has always been able to move the arm and hand in different directions, although slowly and sluggishly, and has not been obliged to take to his bed for a single day.

Such an evolution of symptoms points very plainly to brain disease of syphilitic origin; indeed, the diagnosis might in this case almost have been made without inquiry about a previous specific sore or secondary symptoms. This man had had a stroke of paralysis of the right side at twenty-eight years of age, without any other systematic affection which could account for it; and we may take it for granted that if hemiplegia occur in a patient between twenty and forty years of age, who has no heart disease, diabetes, tabes, kidney disease, alcoholism, etc., and in whom there has been no preceding acute illness, such as pneumonia, typhoid fever, etc., there is the strongest presumption that the affection is venereal. Another characteristic sign was that there had been no apoplexy at the time the stroke took place; for while the ordinary attack of hemiplegia from softening or hemorrhage is habitually accompanied by loss of consciousness and incontinence of the excreta, the syphilitic patient, when struck by hemiplegia, often assists himself, being fully conscious at the invasion of the paralysis. Then again the palsy had been incomplete from the beginning, and had remained so throughout its further progress. This incomplete character of the paralysis is another peculiar feature of syphilitic hemiplegia; for while in the idiopathic form there is complete loss of motor power, at least for the first few days or weeks of the illness, this is somewhat exceptional in the syphilitic variety, which is more frequently paresis than paralysis.

I have stated that the first nerve symptom which occurred in this patient was drooping of the left eyelid, and difficulty of seeing with the left eye.

On examining the eye, I found there was external as well as internal ophthalmoplegia, owing to paralysis of the third, fourth, and sixth nerves. This paralysis was complete in the superior and inferior recti, and the inferior oblique muscles; and incomplete in the levator palpebræ superioris, the internal and external recti, and the superior oblique. There was also paralysis of accommodation, and of the sphincter and dilator of the iris. The pupil was large, of ovoid shape, insensitive to light, and only slightly influenced by eserine and atropine. Dr. Laidlaw Purves reported the ophthalmoscopic appearances of the fundus of the eye to be normal, the tension likewise normal, no bulging or tenderness to pressure, vision $\frac{16}{cc}$, color-vision fair. The right eye and eyelid were quite normal, and there was no sign of disease in the other cranial nerves. The complication of hemiplegia of one side with ophthalmoplegia on the other side is again most significant for syphilis. In the ordinary form of hemiplegia the only cranial nerves which are affected are the portio dura and the hypoglossus of the same side. In syphilitic hemiplegia, on the contrary, we frequently meet with palsies of the nerves of the eyes, more especially the third, but also the fourth and sixth. Such palsies, indeed, were long ago called by Ricord the signature of syphilis on the eye of the patient. Ptosis alone is very common; and still more common is ptosis combined with paralysis of the rectus superior, or the rectus internus. Besides these, there are all possible varieties and combinations of ocular palsies, occurring in about three out of every four patients suffering from cerebral syphilis.

A second type of syphilitic hemiplegia is that in which the paralysis is preceded by headache of a peculiar character; and of this the following is a good instance:

An architect, aged thirty-seven, single, consulted me in December, 1881. He had not inherited any neurotic tendency, and had been in excellent health —saving an attack of smallpox when quite young— until 1873, when after impure connection he was troubled with a chancre, which was soon followed by roseola, sore throat, and ulceration of the tongue. These symptoms continued for about twelve months, but eventually yielded to mercury and Zittmann's decoction. The patient then remained apparently in good health for six years, when he was seized with headache of extreme violence, which occupied the very centre of the head, and came on periodically three or four times in the course of the twenty-four hours. It lasted for about an hour each time, and was so severe as to drive him nearly frantic. It was not like neuralgia, rheumatism, or megrim, but more deep-seated and inside the head, as if blows from a heavy hammer went right through the substance of the brain. The patient was singularly enough all the time treated with quinine, which did no good, and the pain continued with the same maddening violence for six months, when the patient one day fell down in a fit, speechless, but not unconscious, paralyzed on the right side, but retaining full control over the excreta. From that day he never has had any more headache. In ten days he recovered his speech, but the paralysis of the side remained. After a time he was seized with such severe pain in the spine that as many as five hypodermatic injections of morphia per diem were required to ease him; and shortly afterward he lost power over the left leg, the bladder, and the bowels. The bladder at the same time was so irritable that the patient had to introduce the catheter, which he did with the left hand, every hour by day and night. His speech and all the intellectual faculties were normal, there was no ocular paralysis, but paralysis and rigidity of the right arm and both legs, paralysis of the bladder, and great sluggishness of the bowels. No similar evolution of symptoms ever takes place in cases of idiopathic disease.

A third type of syphilitic hemiplegia is that where both sides of the body are affected in succession, the attacks following one another either within a few days, or weeks, or months. A case of this kind was that of an officer, aged forty, single, who came under my care in April, 1880. He had enlisted in the British army when seventeen years of age, and served chiefly in India. His health had on the whole been good, but in 1875 he had gonorrhœa and syphilis, and was treated with mercurial inunction. Rather more than three years after this he was told off to take part in the campaign in Afghanistan, and suffered a good deal from exposure to the extreme cold prevalent at that time. Presently he began to suffer from headache, giddiness, and general malaise, which continued for about a week. One night, being too restless to sleep, and feeling very unwell, he got out of his tent and began to walk about in camp, but found that he had great difficulty in moving. He therefore went back to his tent, and after awhile fell asleep. On waking in the morning he was surprised to find himself paralyzed—the left side, and that the excreta had passed under him. He could not put out his tongue, had great difficulty in speaking and swallowing, and his pupils were very large. Five days afterward he felt that he was losing power in the right side of the body; and this became worse day by day, so that at the end of ten days he was completely paralyzed and had lost the power of speech. During the whole of this time he never once lost consciousness, but constantly suffered from faintness, giddiness, and headache. He was put on iodide of potassium, and within a month from the commencement of the illness began to improve. The speech returned, although there was still difficulty of articulation; he recovered a degree of motor power, more especially in the right side; was invalided and sent home, and bore the journey fairly well. I have seen him quite lately; he remains in much the same condition, is totally disabled so far as locomotion is concerned, but his intellectual faculties have remained quite clear.

In other patients months may intervene between the successive attacks of hemiplegia. Such was the case of a woman, aged thirty-four, whom I saw at the hospital in December, 1883. She had been quite well up to the time of her marriage, five years ago. Her husband was a soldier, had served in the British army in almost every quarter of the globe, and no-

toriously led a very wild life. A month or two after her marriage, the wife was seized with ulcerated throat and an obstinate skin eruption. Three years afterward she suddenly found that her left eyelid drooped, and there are now ptosis and paralysis of the rectus internus. Six months after that she had a stroke of right hemiplegia with aphasia, and four months after this left hemiplegia. She made a good recovery so far as the aphasia and the paralysis of both sides were concerned, but the ptosis and palsy of the rectus internus remained unaltered.

The last type of syphilitic hemiplegia to which I will draw your attention to-night is that where the paralysis comes on quite slowly. In February, 1885, I was consulted in the case of a young man, aged twenty-three, who after infection only eight months previously, was taken with insidious symptoms of gradually increasing hemiplegia of the left side. As he was in a highly nervous condition, and so depressed in spirits that he would often burst out crying apparently for no reason, his affection had been diagnosticated as hysterical, and he had been treated with iron and phosphorus and shower baths. The loss of power had appeared at first in the left leg, the patient being unable to lift his foot well from the ground, and scraping it when walking. After a time the fingers of the left hand had likewise become affected; the patient was very clumsy in dressing and eating, and had to give up playing on the piano. Paralysis of the lower branches of the portio dura eventually came on, causing deformity of the face when laughing, and difficulty in whistling. Headache and drowsiness then intervened, and the intellect became clouded.

This case was peculiar from the unusually early appearance of so-called tertiary symptoms, viz., eight months after the primary sore; and this had at first no doubt prevented a due appreciation of the cause of the illness. Treatment by inunction was now resorted to, and showed the disease to have been truly specific, for there was manifest improvement in a few days, and the patient eventually made a very fair recovery.

You will readily admit that the several types of syphilitic hemiplegia which I have just sketched, differ *toto cælo* from the ordinary form of hemiplegia which occurs in the aged from hemorrhage or softening, while they differ no less considerably from one another. Indeed, while twenty cases of ordinary hemiplegia taken quite promiscuously are very much alike, there is hardly a single case of syphilitic hemiplegia which exactly resembles another; and it is this extraordinary variety in their clinical aspect which constitutes one of their most characteristic features. But is this peculiar grouping of symptoms sufficient to render the diagnosis of specific brain disease certain? Such is not the opinion of Fournier, who states that there is not a single pathognomonic symptom whereby we can distinguish idiopathic from syphilitic hemiplegia, and that we must rely for our diagnosis not only upon the peculiar development of the nerve symptoms, but also on the presence of venereal affections in other organs, such as the skin, the testicles, and the bones; on the fact that syphilitic hemiplegia occurs not so much in the aged as in persons in the prime of life; and that we can arrive at certainty only by the results of specific treatment, as the latter may cure the syphilitic variety, while mercury and iodide of potassium remain ineffectual in ordinary hemiplegia.

I am bound to say that I consider this latter test, viz., by the results of treatment, a very fallible one, as specific treatment fails to cure a very considerable number of cases of hemiplegia where there can be no doubt whatever about the specific nature of the complaint. I have, however, for some time past been of opinion that there exists one truly pathognomonic symptom whereby we are able to distinguish at a glance the syphilitic from the ordinary form of hemiplegia; and this symptom is an excessive exaggeration of the deep reflexes or tendon phenomena, which is present in syphilitic cases, and wanting in idiopathic cases.

In 1882, I showed a syphilitic patient, at the Clinical Society of London, in whom this symptom was so characteristic that it attracted my special attention. In that case the tendon phenomena were so much increased in the paralyzed leg that it shook fearfully on the least provocation, such as a sudden noise, opening the door, introducing the catheter, sneezing, coughing, etc. Percussion of the patellar ligament, of the tibia, and in fact of almost any point of the limb, induced violent so-called spinal epilepsy, which lasted for a considerable time, and was very greatly in excess of what is seen in ordinary hemiplegia. Another patient, when his patellar tendon was only touched, stamped the ground so violently as (according to his own saying) almost to bring the house down; and it is an interesting fact that this excessive exaggeration of tendon reflexes is not at all in proportion to the degree of the paralysis or muscular rigidity which may be present. Indeed, I have seen it in cases of syphilitic hemiplegia as well as of monoplegia, where the loss of power, although quite definite, was yet comparatively very slight; and it is a symptom on which I now chiefly rely in my diagnosis of these cases. Of course, it can only be utilized where the reflexes on the healthy side are normal, for there are patients, more especially of the neurasthenic type and also those suffering from the various forms of spastic paralysis, in whom these reflexes are everywhere greatly exaggerated, and in whom, therefore, such an appearance would not have the same significance. The exaggerated response occurs in the upper, as well as in the lower extremity, with equal force and readiness; but the symptom is habitually not quite so marked in cases where the paralysis has come on gradually as where there has been a sudden stroke.

I regret I have no time left to speak of the influence of treatment in this and similar conditions. It is, however, a singular fact that, while the therapeutical results in syphilitic nervous affections are sometimes exceedingly gratifying, they should, in other instances, be just the reverse. There is a general impression in the profession that the prognosis in specific lesions is altogether better than in ordinary idiopathic disease; but this is only partially true, for many patients suffering from cerebral affections on a syphilitic base, even if energetically treated on

a specific plan, do not recover, and either remain stationary, or undergo a rapid process of further deterioration, ending habitually in general paralysis of the insane. This apparently incongruous fact is, however, well accounted for by the circumstance that in brain syphilis we have to do not only with specific lesions, but also with the secondary consequences of such; and that these latter cannot, in the nature of things, be expected to yield to antisyphilitic treatment. No doubt a gumma in the subarachnoid space may be absorbed, and thickening of the dura mater reduced; but where a gumma has already caused wasting of the cranial nerves by strangling their substance, or where the occlusion of an important cerebral artery has led to softening of a certain area of cerebral tissue, such secondary and non-specific lesions cannot be cured, for no amount of mercury and iodide of potassium, or, in fact, any other drug, can restore nerve cells and fibres which have once perished. It is, therefore, only possible to cure those patients in whom the primary specific lesions have not as yet conduced to secondary ordinary lesions. The lesson which we have to learn from this should, therefore, be to subject patients, as soon as they show the slightest definite symptom of specific brain disease, at once to an energetic antisyphilitic treatment, so as to disperse the primary and truly syphilitic lesions, and to prevent, so far as possible, the formation of secondary ordinary lesions, against which latter our remedies are known to be powerless. What occurs in syphilis of the brain thus affords a striking illustration of the truth of the old Hippocratic maxim, *ὁ δὲ καιρὸς ὀξύς*, "the opportunity is fleeting." Let us, therefore, always endeavor to make use of it before it is too late.

THE PROGRESSIVELY INCREASING MORTALITY OF THE CÆSAREAN OPERATION IN THE UNITED STATES.

By ROBERT P. HARRIS, M.D.,
of Philadelphia.

An abstract report of what I stated through Dr. W. H. Parish, before the American Gynecological Society at its late meeting in Baltimore, has been furnished our medical journals for publication, in such a condensed form that it must necessarily fail in accomplishing the purpose for which the full record was prepared. The reporter, by reducing the facts to four lines, and leaving out entirely the most startling portions presented, has destroyed the progressive character of the statement. Forty years ago, this country stood in the fore front among the nations of the world in respect to its proportionate success under the Cæsarean operation; to day, judging from the work of the last five years, we are almost at the bottom of the list. And this retrogression has taken place notwithstanding the fact that the possibility of the success of this operation in the United States, when performed under favorable circumstances, has amounted to a saving of seventy-five per cent. of the women and eighty per cent. of the children. To show that this is a possibility still attainable under proper care and management, we have only to cite the fact, that during the past year European operators have, by the improved methods of Sänger and Leopold, saved 18 out of 20 women, and 19 (possibly 20) children.

Prior to 1846, my record shows a credit to this country of 21 operations, with 13 recoveries and 10 children saved. In contrast with this, the last 21 operations, covering nearly six years, show a mortality of 18 women and 14 children; of the last, three having been destroyed by craniotomy, and one by the forceps, its cranium having been fractured.

In the decade from 1846 to 1855 inclusive, the record is as follows:

Number of operations	25	Children delivered alive	13
Women saved	12	Children delivered dead	12
Women lost	13		

From 1856 to 1865 inclusive, ten years:

Number of operations	25	Children living	10
Women saved	12	Children dead	15
Women lost	13		

From 1866 to 1875 inclusive, ten years:

Number of operations	36	Children living	11
Women saved	10	Children dead	25
Women lost	26		

From 1876 to 1886 inclusive, ten and one-half years:

Number of operations	37	Children living	16
Women saved	8	Children dead	21
Women lost	29		

As there have been 5 Sänger operations performed in the United States, all ending fatally, with 3 children lost, there must be some readily ascertainable reason for the difference of results here and in Europe. We know that these operations were performed with care, as have been many others in the last ten years, which were likewise fatal; but the most careful of operators cannot overcome the difficulties engendered by long delay and futile intermeddling on the part of one or several accoucheurs, preceded, as in some instances, by the patient waiting for nature, of a midwife. It is one thing to operate as soon as the proper time arrives, and quite another to do it under a conviction that this time has in all probability passed many hours, some days, or even a week or two. There would appear to be an intimate connection between the living of the fœtus and the success of the operation, an association which has also been very marked in the Sänger cases. If our obstetricians had as good a knowledge of pelvimetry as prevails in the maternities of Austria, France, Germany, and Italy, there would be much less delay, and fewer attempts to deliver, either by forceps or craniotomy, in cases of pelvic deformity, or other forms of obstruction. If the pelvic space is first accurately ascertained, its measure of diminution should at once determine the possibility or impossibility of delivery by version, the forceps, or craniotomy. It is certainly bad practice to fail first in craniotomy, and then be forced to deliver the destroyed fœtus, by opening the abdomen and uterus, with the increased risk to life engendered by the futile intermeddling.

The declination of the family is sometimes given as a reason for delay; but this objection to the use of the knife would not hold, if the parties in interest

were made to understand that the operation was absolutely requisite, and that to delay was to lose the patient. Reduce the mortality, by promptness, decision, and the best improvements in operating, and the dread of the knife will diminish as success becomes more frequent. Properly educate the obstetrician, and the surgeon will soon show what measure of fatality truly belongs to his part of the work. We are certainly justified, from the Sänger successes, in our claim that *per se* the Cæsarean operation is far less fatal than it has been made to appear in the United States. The *possibility* of the operation is certainly far beyond its present *probable result* in this country, as calculated from past experience.

As this statement of results has been made entirely in the interest of science and humanity, the writer hopes that our medical journals will give it the widest publicity possible. Out of 144 cases in my private record, 63 were communicated, either by the operators or by other correspondents; hence the value of the statistics, as showing the mortality under the operation. But for these unpublished cases, we should have made a much more encouraging exhibit.

THE USE OF KAVA KAVA AS A DIURETIC.

By HERBERT C. ROGERS, M.D.,
of Brooklyn, N. Y.

I first noticed the diuretic properties of kava kava nearly two years ago, when I commenced using it in gonorrhœa.

Among the cases recorded in my note-book are the following:

Case I.—Charles W., aged twenty-seven, United States, in the steamship business. Family history good. Patient states that three days ago, while attending to his duties, he was suddenly seized with a chill and headache, and toward evening commenced vomiting. Yesterday he first noticed that his ankles and legs had become swollen; he also noticed that he was compelled to make water frequently, and that only a small quantity passed at a time.

When I was first called to see him, November 2, 1885, his legs and feet were greatly swollen. He was also quite weak, and suffered somewhat from dyspnœa. Abdominal and thoracic viscera were normal. Temperature, pulse, and respiration were normal. The urine presented a dark, smoky appearance; amount, seventeen ounces during twenty-four hours; it contained albumen, nearly seventy-five per cent.; sp. gr. 1.018, blood, and epithelial casts. As the patient was complaining bitterly of headache, I administered a hypodermatic of $\frac{1}{10}$ gr. pilocarpine. In a few minutes the drug began to show its physiological action, and in a short time he was covered with a profuse perspiration. The patient was placed upon milk and Vichy water; also to take thirty minims of the fl. ext. kava kava in half a glass of water, every three hours.

Nov 3. Patient during the preceding twenty-four hours has passed nineteen ounces of urine; chemical and microscopical appearances same as at last examination. He still complains of the pain in his head, but says it is not so severe as it was yesterday. He has not vomited since the evening of the 2d, and his bowels have moved three times. Ordered forty minims of kava kava every three hours.

4th and 5th. Patient feels a little better. Has passed twenty-one and twenty-five ounces respectively; the urine is clearer, and the albumen amounts to about thirty per cent. (by volume).

10th. Up to the time of the present note the patient has been gradually improving. The amount of urine passed is between thirty-five and forty ounces; albumen about fifteen per cent. As he has been suffering intensely from odontalgia for the past two days, and was unwilling to have his teeth drawn except while subjected to an anæsthetic, he was this afternoon put under the influence of nitrous oxide and three of his teeth were extracted.

11th. Patient is sitting up to-day, and is feeling quite nicely. During the preceding twenty-four hours he passed thirty-seven ounces of urine. The albumen is slightly increased, probably due to the anæsthetic administered yesterday. Sp. gr. 1.020. Treatment continued.

16th. Patient up, and about his room. He has passed, during the previous five days, two hundred and forty ounces—an average of forty-eight ounces per day. The swelling of his feet has disappeared, and also the swelling under the eyelids. The urine is clear, and contains about five per cent. of albumen. He has passed since last note from forty-five to fifty ounces per day. Sp. gr. 1.021. His appetite is good, and he is feeling much better. He was advised to continue taking the kava kava regularly for a month or six weeks—the dose to be ten minims in water three times a day.

Dec 3. I examined patient's urine, sp. gr. 1.027. He is passing from forty-seven to fifty-one ounces a day. The dropsy has entirely cleared up, and he is feeling quite well, with the exception of being a little weak. He left for the South to-day.

In a letter received from him about the middle of April, he writes that he is feeling better than he ever felt in his life. He has gained ten pounds in weight. His urine is free from albumen. He is passing from forty-eight to fifty-three ounces per day, of a sp. gr. 1.022. He has not taken any medicine since February.

Case II.—Jennie M., aged thirty-five, single, United States, a type-writer by occupation. Ill nourished and confined closely to office. When seventeen years old, patient suffered from scarlet fever. While recovering from this, she noticed that her feet and legs were becoming swollen, and also that her stomach and abdomen were increasing in size, so that she was obliged to let out her clothes. All these symptoms disappeared in a short time under treatment, when she resumed her employment. One week ago, while at work, she was taken with vomiting, which was followed by pain across the loins, and her feet and legs commenced swelling. She also suffered from headache. Her urine had been scanty for a long time.

I was called to see the patient October 6, 1885. Found her legs and feet much swollen. She was suffering also from hydroperitoneum. Her urine

was scanty, of a smoky color, and loaded with albumen, fifty per cent.; it also contained blood, granular, and waxy casts. Complete anorexia. She complained of a dull, aching pain over the lumbar region. She suffered from constant nausea, but seldom vomited. She was ordered forty minims fl. ext. kava kava in half a glass of water, every four hours; and a pill containing two grains citrate of iron and quinia three times a day. She was also ordered to drink as much fresh milk as possible with Vichy water.

Under this course of treatment the hydroperitoneum and anasarca of the lower extremities gradually diminished, and the quantity of urine passed during the twenty-four hours increased from twenty-nine ounces on date of my first visit, to fifty-one ounces on November 29th. The sp. gr. on October 6th was 1.018, and on November 29th, 1.022. The urine is much clearer, and the albumen amounts to about twenty-five per cent.

The treatment has been continued up to the present note, when I diminished the fl. ext. kava kava to half the quantity—twenty minims to be taken three times a day.

Dec. 20. The patient has recovered sufficient strength to go about, and is feeling quite comfortable. Her urine still contains a small amount of albumen. She is passing from forty-eight to fifty-one ounces a day. Her appetite is good, and she feels sufficiently restored to return to her occupation. She will report occasionally, and bring specimens of her urine to be examined. She will take for the present five drops of the tr. ferri mur. three times a day. The kava kava was discontinued December 1. 1885.

Case III.—Henry Z., lawyer, aged thirty-one. Born in England. Father died of apoplexy. Mother still living and enjoying good health, being eighty-five years old. Patient has been in good health until three years ago, when he was confined to bed by rheumatism, which lasted two weeks. He was attended by a homœopathic physician, who informed him, after he was able to go out, that his heart was not affected. To use the patient's language, he has "never fully recovered from this sickness." Shortly after this attack of fever he went South and remained until last December, when he was called home on account of business. At this time he was feeling better than at any period since his illness. About two months ago he began to notice that he was a little short of breath, which difficulty troubled him most when he was addressing a jury. As he was busy, he found no time to take rest. He also noticed that his feet and ankles were a little swollen at night on reaching home, and that he was obliged to sleep with his head quite high.

I first saw the patient March 13, 1886, when he came to consult me about the symptoms narrated above. Upon examination, I found that his feet and ankles were moderately swollen; slight hydroperitoneum. Examination showed that the heart was hypertrophied; the apex beat was heard and felt the strongest in the fifth intercostal space and a little more than one inch to the left of the nipple line, and a mitral regurgitant and an aortic direct and regurgitant murmur were readily heard. His temperature was normal. Pulse 110. His urine was quite clear, and contained merely a trace of albumen; no casts; acid; sp. gr. 1.020, and he was passing thirty-three ounces in the twenty-four hours.

Patient was ordered milk, Vichy water, and infusion of digitalis ʒij every two hours.

March 15. Patient feels about the same. The digitalis caused so much stomach disturbance that he omitted it for the preceding twenty-four hours. Thinking that the stomach trouble was, perhaps, due to other causes, I ordered two minims fl. ext. digital. in water three times daily. At the end of forty-eight hours, however, he was suffering as much as ever from his stomach, and I had to omit the digitalis. His condition was about the same, with the exception that he did not suffer from shortness of breath. He was ordered to take ten minims of the fl. ext. convallaria majalis and forty minims of the fl. ext. kava kava in half a glass of water every three hours; to continue on with the milk diet; and in addition to take ʒij of whiskey three times a day.

22d. Patient is feeling much better. The diuretic effect of convallaria and kava kava is very marked to-day. He says he is passing enormous quantities of urine. The anasarca of feet and ankles is nearly gone. The hydroperitoneum has entirely disappeared. The urine is free from albumen. The heart is acting with more regularity. The appetite and digestion are good.

28th. As to-day was quite warm and pleasant, my patient accompanied me around part of my route. He says he can go up and down stairs slowly. He does not suffer from dyspnœa. The swelling is entirely gone from his feet and ankles. His appetite is good, and he is able to lie down at night. I stopped all medicine; but a few days later he called at my house complaining of slight dyspnœa and a little swelling about the ankles. I ordered five minims of the kava kava and five minims of convallaria majalis three times a day.

April 3. Patient was able to return to his office to-day, and to attend to light office business.

May 25. Met patient in court to-day. He informs me that he is feeling very well, and that this morning he made an address in court, nearly three hours in duration. He is still taking the medicine. He sleeps well, and his appetite is good.

Case IV.—Was asked to see, in consultation, a young lady, sixteen years of age, who had had scarlet fever three or four weeks ago. The attack was quite mild, and she was confined to bed less than ten days. Up to this present attack the patient had always enjoyed good health. I found her very weak. She had great swelling of her feet and legs; was passing but a small quantity of urine per day, which was loaded with albumen. There were complete loss of appetite and some headache. She was put upon milk, and forty minims of kava kava in half a glass of water every three hours, and ten drops of tr. ferri mur. three times daily. In the course of a few weeks, as I am informed by her mother, the œdema entirely disappeared, her appetite became good, and she went back to school.

The fluid extract of kava can be given in doses of from five minims to a drachm, repeated every three, four, or six hours according to the result desired. The preparation which I have used is the fluid extract prepared by Parke, Davis & Co., whose fluid extracts are arranged to represent one grain for each minim.

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ANTISEPTIC SURGERY IN THE PENNSYLVANIA HOSPITAL.

By CHARLES BINGHAM PENROSE, M.D.,
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In June, 1886, an attempt was made, with the permission of the visiting surgeons, to introduce thorough antisepsis into the surgical wards of the Pennsylvania Hospital. Before this, a modified form of antisepsis had been used. Instruments were, sometimes, placed in solutions of carbolic acid. Wounds were washed with solutions of carbolic acid, or of bichloride of mercury. Vessels were tied with catgut or silk. Rubber drainage tubes were used, and wounds were generally closed with silver sutures. Carbolized oil, dry carbolized gauze, or gauze wrung out of a solution of bichloride of mercury, constituted the dressing. Iodoform was used freely.

Many of the materials necessary for a thorough antiseptic operation were at hand, but, in most cases, discouraging failure was the result of all attempts at such an operation. The nurses were untrained in antiseptic methods. They considered their hands clean if washed two or three times during the day. They placed dressings on chairs or beds; a favorite place was the ward carriage. Dry carbolized gauze was thrown about, apparently with the idea that the little carbolic acid in it was an absolute preventive against all contamination. It was most difficult for the busy operator, assisted by men ignorant of antiseptic principles, to observe all antiseptic precautions. He was, consequently, content with modified antisepsis—that is, with careless antisepsis. Some of the channels by which septic matter might enter the wound were closed, but at the same time many remained open.

The statistics of the Hospital were good. They could, however, have been better; and the good results were obtained with much unnecessary labor and expense. Cellulitis often followed amputations of fingers. Pus often appeared under scalp wounds. Large amputations were dressed every few days, and the healing of stumps was often much delayed by unabsorbed catgut ligatures. In fact, many patients who had been discharged from the Hospital with stumps entirely closed, returned, weeks afterward, with small abscesses caused by unabsorbed catgut ligatures.

The object of the writer is not to decry the methods which had been previously used, and which he himself had used for several months; but it seemed to him that it might be useful briefly to describe the methods which were afterward more successfully pursued: the simple ways of preparing the necessary materials; and to give an account of some of the results that have been obtained.

It cannot be said that all cases have had the benefit of thorough antiseptic treatment. The Hospital was deficient in many important particulars necessary for antiseptic surgery, and the nurses were untrained. All the minor operations, however, and several major operations have been performed in a thoroughly antiseptic manner.

Method of Proceeding.—The part to be operated upon was shaved, washed with turpentine or ether, scrubbed with a nail-brush and soap, and finally washed off with a solution of bichloride of mercury, 1 part to 1000 parts of water. It was placed upon a rubber sheet wet with a solution of bichloride, and towels wrung out of the same solution were placed about the part. Upon the ward carriage were two vessels containing bichloride solutions; one solution of 1 part of bichloride to 1000 parts of water, the other, 1 part to 2000. To each vessel was attached a rubber hose. During the operation the weaker solution was kept constantly running over the wound. All arteries were tied with catgut. Catgut drains were used in all smaller wounds where drains were necessary. In larger wounds rubber drainage tubes and bone drainage tubes were used. Instruments were boiled after every operation, and during the operation they were placed in a three per cent. solution of carbolic acid. New sponges were used for every operation. Catgut sutures were employed in all but a few cases where fine silk was necessary.

As before mentioned, the catgut which had previously been used in the hospital was rarely, if ever, absorbed. This catgut was obtained from Seabury & Johnson, and was preserved in carbolized oil. It was not pliable, and was difficult to tie. It is probable that, in many cases, this gut was not absorbed because the wounds were not dressed antiseptically, and suppuration took place. In an antiseptic operation it should, at least, have become encysted. Much better catgut was prepared by the following method: Ordinary commercial gut, such as is used for musical instruments, etc., was placed in oil of juniper for about two days, in order to remove the oil of the gut. It was then washed, and preserved in alcohol. Gut thus prepared is absorbed in from five to ten days, according to the size. If placed in a watery solution for a minute before using, it becomes as pliable as silk. In cases where it was necessary for the sutures to be stronger, and to be absorbed less rapidly, chromicized gut was used. The gut was chromicized by Lister's method. One part by weight of catgut was placed in a solution containing $\frac{1}{200}$ part of chromic acid, 1 part of carbolic acid, and 20 parts of water. In about forty-eight hours the color of the solution changes from an orange to a faint olive color. The gut was then washed, and preserved in alcohol. Gut thus prepared is absorbed in from ten days to three weeks.

The catgut which was used for drainage was generally absorbed in five days.

Bone drainage tubes were made from chicken bones. The bones were cleaned, washed with ether, and placed for about two days in a solution of hydrochloric acid, one part of acid to five of water. After the calcareous elements had thus been dissolved, the endosteum was easily removed. They were then placed in oil of juniper for two days, and afterward

preserved in alcohol. These drainage tubes are absorbed in about five days.

Much stronger tubes have been made of parchment, at the suggestion of Dr. W. B. Hopkins. The parchment was softened in a solution of bichloride (1 to 1000), and was then rolled into the requisite shape. The tubes were then placed in oil of juniper for three days, and preserved in alcohol. No opportunity has yet occurred for using these tubes.

Rubber drainage tubes were kept in a three per cent. solution of carbolic acid.

As already stated, sponges which had been used were always thrown away after the operation. Cheap sponges were bought; the carbonate of lime was dissolved by soaking for several hours in dilute hydrochloric acid, one part of acid to ten of water. They were then bleached by the following method: Place the sponges for a few minutes in a solution containing 180 grains of potassium permanganate to five pints of water; squeeze dry, and place in a solution made by dissolving ten ounces of hyposulphite of sodium in sixty-eight ounces of water and then adding five fluid-ounces of hydrochloric acid. This solution should be made several hours before using, and should be filtered. When placed in the last solution, the sponges immediately become bleached; they should then be removed and washed with water. These sponges were kept in a solution of bichloride (1 to 1000), and during an operation they were washed in the bichloride solution.

Wounds were dressed with protective, and several layers of gauze wrung out of the bichloride solution (1 to 1000)—the surface next the skin being thickly covered with iodoform. If necessary, over this was placed corrosive cotton, or corrosive jute, and a gauze bandage wrung out of the bichloride solution.

It is, unfortunately, not possible accurately to compare the statistics of the Hospital when modified antisepsis was employed with the statistics of the past three months, because no regular statistics of the results and complications of the smaller wounds were previously kept. The writer, however, can recall at least a dozen cases of cellulitis of the hand and arm following wounds, which occurred in his own ward during the four months previous to the introduction of thorough antisepsis. On one occasion there were three men in adjacent beds; one with cellulitis following amputation of the fingers, a second with cellulitis following a lacerated wound of the wrist, and a third with cellulitis following a dog-bite.

During the last three months over five hundred wounds requiring sutures have been treated at this Hospital. One hundred and fifty of these were scalp wounds; fifty were amputated fingers. Among the others, were eleven compound fractures of fingers, six compound dislocations of fingers, seven wounds requiring the suturing of tendons, twelve pistol-shot wounds of the hand. One case of cellulitis has followed these injuries. This occurred in a man with a crushed heel, admitted seven hours after receiving the injury. The skin and fascia had been torn from the os calcis, leaving the bone exposed. The wound was dressed in the usual way. The temperature remained normal for four days after admission, and he had no pain. On the fifth day he complained of pain, and the temperature rose to 100°. The dressing was removed and the foot was found to be red, swollen, and tender. The stitches were cut, and irrigation with bichloride (1 to 5000) was started. In twelve hours the temperature fell to normal. In two days a permanent dressing was again put on, and he made a speedy recovery.

There have been two cases of surgical erysipelas, one occurring in a scalp wound which was first seen four days after the injury had been received: the other, in a case of compound fracture of the skull, where the delirium of the patient rendered it impossible to retain the dressing in place.

It must not be forgotten that these five hundred wounds were all dirty wounds, occurring in laborers injured at their work, or in men from the slums of the city, who take their baths yearly, if at all.

Felons, abscesses, etc., have been freely laid open, scraped thoroughly with the finger-nail or a spoon curette, and scrubbed with a solution of bichloride (1 to 1000). Catgut drains, when necessary, were introduced, the wounds were wholly or partially sutured, and an antiseptic dressing was put on. These cases healed under one or two dressings, like simple lacerated wounds. Poultices were never used after an incision had been made.

Poisoned wounds, dog-bites, human bites, etc., were enlarged if necessary, and thoroughly washed with a solution of bichloride (1 to 500). Out of twenty-four such cases, there has been but one case of cellulitis following the injury.

The following is a list of the major cases which have been treated with thorough antisepsis during the last three months:

I. Razor cut of wrist: division of ulnar artery, tendons of palmaris longus, flexor carpi radialis, and flexor sublimis digitorum. The tendons were sutured with catgut. Dressing removed after fourteen days; wound closed, with the exception of small ulcer where the catgut drain had emerged. Discharged with good use of hand.

II. Hand crushed by wheel of carriage: compound fracture of four metacarpal bones. First dressing removed after ten days, to take out rubber drainage tube. When the second dressing was removed, ten days later, the wound had completely closed.

III. Compound fracture of thigh, lower third, from direct violence. External opening closed when first dressing was removed, at the end of nineteen days.

IV. Compound fracture of humerus, middle third, from direct violence. Catgut drain introduced. First dressing removed after twelve days; small, superficial ulcer left.

V. Compound, comminuted fracture of humerus, from direct violence. External opening closed in eighteen days, after two dressings.

VI. Compound, partial fracture of radius, caused by fall of gravel bank; large, lacerated wound, full of dirt. Dressing removed after fourteen days; wound closed.

VII. Ununited fracture of radius. The bones were exposed, the ends freshened, and fastened to-

gether with silkworm gut. Dressing removed after twelve days; wound closed.

VIII. Compound fracture of ulna and radius, from direct violence. Wound enlarged about three inches. Wound closed when first dressing was removed, after fourteen days.

IX. Amputation of breast, and removal of axillary and subclavicular glands for carcinoma. Rubber drainage tube removed on fifth day. Second dressing removed on twelfth day; wound closed.

X Amputation of leg, at middle third, for crush. Bone drainage tubes introduced. First dressing removed after two weeks: second and last dressing removed two weeks later.

XI. Crushed leg, which had been amputated at upper third, twenty-four hours before admission. When admitted, temperature 103°; stump full of blood, and dressed with lard. Stump was opened, flaps scrubbed with bichloride solution; rubber drains introduced, and stump closed. Cured in twenty-five days, after three dressings.

XII. Compound, depressed fracture of skull. The skull was trephined, and the compressing fragment of bone removed. Catgut drain introduced, and wound closed. When the first dressing was removed, at the end of fourteen days, there was complete union.

XIII. Cervical adenitis: removal of large number of glands from clavicle to mastoid process. Catgut drain introduced, and wound closed. First dressing removed in nine days, small ulcer left.

XIV. Incised wound of leg: division of part of tibialis anticus muscle, extensor longus digitorum, two peroneals, soleus, and gastrocnemius, and the musculo-cutaneous nerve, and anterior tibial artery. Muscles and nerves sutured. Complete union on ninth day. When discharged, there was no anæsthesia or paralysis.

XV. Multiple incised wounds of foot from lawn mower: several tarsal and tarso-metatarsal joints opened, and compound fracture of several tarsal bones: division of all the flexor tendons. Tendons sutured, and catgut drain introduced. When the dressing was removed, at the end of two weeks, all the wounds were closed. When discharged, there was perfect use of the whole foot, with the exception of two toes.

XVI. Crush of foot: several large, lacerated wounds; compound, comminuted fracture of great and little toes. Amputation of great toe. Cured in seventeen days, after one dressing.

XVII. Strangulated inguinal hernia and epiplocele. Excision of large part of omentum, and division of internal and external abdominal rings. Sutures introduced in sac, and in columns of ring. Catgut drain. Complete union when the first dressing was removed, after twelve days.

This list comprises all the major cases which have been treated antiseptically during the past three months at this hospital; they are not merely the picked cases which have done well. Many other major operations have been done with modified or careless antisepsis, with the usual results, some good and some bad.

With regard to the deleterious effects of antisepsis, little need be said. In no case has a patient exhibited symptoms of mercurial poison. In a few cases, some irritation of the skin has been produced by the bichloride. The only cases in which such irritation has been of any consequence, were those in which the skin had been badly bruised. In such cases weaker solutions than 1 to 2000 should be used in the dressings. The writer of this article suffered from a mild attack of mercurial stomatitis, produced by unnecessary handling of bichloride solutions. No other person connected with the hospital has been poisoned.

The cases mentioned in the statistics of this paper were dressed by Dr. T. S. K. Morton, and the writer. Dr. Morton expects, in several months, to report the further results of antisepsis in the Pennsylvania Hospital.

MEDICAL PROGRESS.

Acute Rheumatism in both Mother and Newborn Child.—Schaefer records the case of a woman, aged thirty-five, who on the fifth day of an attack of acute articular rheumatism, gave birth to a healthy child. On the third day after birth the child was taken sick with fever (99.9° F.), anorexia, and swelling of the superior surfaces of both feet. On the following day there was swelling of the first phalangeal joint of the left index finger, and a doughy swelling of the region of the left hip-joint; temperature 102.2° F. On the day thereafter there were redness and swelling at the wrist and at all finger-joints.

Peacock (*Lancet*, 1882) describes a similar case, treated with salicylate of sodium.—*Centralbl. f. klin. Med.*, Aug. 14, 1886.

Night Palsy.—Dr. W. E. Stevenson, in the *Practitioner* of June, 1886, contributes a short article on a special form of numbness of the extremities occurring, for the most part, during the night, and to which Weir Mitchell has given the name of night palsy. Dr. Ormerod's description is quoted as follows: "The symptoms are remarkably definite in character. They occur in women, usually about the climacteric period, and begin in the night. On waking, the patient has a feeling in the hands and arms (commonly on both sides) of numbness, deadness, pins-and-needles; sometimes there is actual pain, severe enough to wake her. There is also loss of power, the hands and arms become useless, and she cannot hold things. This may so far predominate that the patient comes to be treated for a supposed paralysis. Sometimes, also, the patients say that the hands swell, the veins swell, etc., at the time. The symptoms pass off in a little time, and rubbing suggests itself as a natural remedy. But occasionally they manifest themselves in the daytime also, and then principally when the patient sets about her ordinary work—washing, scrubbing, needlework, etc." The author has had several cases of the affection, and his observations agree, in the main, with the foregoing description. Though mostly seen in women at or near the climacteric age, it is occasionally met with in men, in whom it is likely to be more severe and obstinate. Some attribute it to anæmia; others to gastric disturbances. All of the

author's patients recovered with rest, bromide of potassium, and galvanism.

Sodium Phosphate in the Treatment of Pelvic Peritonitis.—Chéron, treating by mistake an extensive pelvic exudation for a fibroid, by subcutaneous injections of sodium phosphate, found that the former rapidly disappeared. The solution used consisted of sodium phosphate, sodium sulphate, āā 5; aq. destill. 120. Of this, four grammes were injected deep into the tissue every eighth day. In two months the entire exudation had disappeared. Four other cases gave like results. The hypodermatic needle must reach the subcutaneous connective tissue, and the injection be slowly made. The point where the needle enters must afterward be gently rubbed for one or two minutes.—*Centralblatt für Gynäkologie*, No. 15, 1886.

A Suggested Alteration in the Compound Liquorice Powder.—Dr. Martin Oxley writes as follows to *The Lancet* of October 2, 1886: "Having found that the above preparation produced very severe griping in many instances where I had ordered it, the griping being particularly severe in some of my younger patients, I have ordered the following formula for some time past, in which anise fruit is substituted instead of the fennel and one-fourth part of ginger is added. The altered formula runs thus: Senna and liquorice-root, of each 2 parts; anise fruit and sulphur, of each 1 part; sugar, 5¾ parts; ginger, ¼ part. This altered preparation is quite as satisfactory in its laxative properties, is less liable to gripe, and is as pleasant to take as the official powder, and I would suggest its trial in cases where the powder as now prepared produces the disagreeable effects to which I have referred."

Crime and Responsibility.—In an article thus entitled, in the *Canada Medical and Surgical Journal*, of October, 1886, Dr. Daniel Clark presents the following conclusions:

1. The natural history of crime shows that brains of chronic criminals deviate from the normal type and approach those of the lower creation.
2. That many such are as impotent to restrain themselves from crime as the insane.
3. That immoral sense may be hidden from expediency by the cunning seen even in the brutes, until evoked by circumstances.
4. No man can shake himself free from the physical surroundings in which he is encased.
5. Crime is an ethical subject of study outside of its penal relations.
6. Insanity and responsibility may coexist.
7. Some insane can make competent wills, because rational.
8. The monomaniac may be responsible should he do acts not in the line of his delusion, and which are not influenced thereby.
9. Many insane are influenced in their conduct by hopes of reward or fear of punishment in the same way as the sane; the rudiments of free-will remain.
10. Many insane have correct ideas in respect to right and wrong both in the abstract and concrete.
11. Many insane have power to withstand being influenced even by their delusions.

The Treatment of Lupus by Local Applications.—Dr. P. G. Unna, of Hamburg, writes as follows in *The Lancet* of September 25, 1886:

Mr. Beiersdorf (40, Wöhlers Allée, Altona) has, upon my suggestion, composed the following five plastermulls for the cure of lupus. Each roll (length one metre, breadth twenty centimetres, equal to one-fifth square metre) contains—

Salicylic acid.		Creasote.	
10.0	grm.	20.0	grm.
20.0	"	40.0	"
30.0	"	50.0	"
40.0	"	40.0	"
50.0	"	50.0	"

Any one wishing to avoid, from the first change of the plastermull, the painful first period after its application, and in this way to institute a completely painless treatment for lupus, may paint the raw surface with a four per cent. aqueous solution of cocaine ten minutes before applying the second plaster. For this short anæsthesia cocaine is as efficient as it was found useless in attempting to produce a lasting diminution of the pain, in addition to the salicylic acid. But creasote is, to my mind, not only the morphine of the skin; it has another especial value in the treatment of lupus—its antiseptic power. It is not only a correctant of the salicylic acid, but also the best adjuvant we can find. At least, excepting cod-liver oil, I know of no antituberculous remedy in which I have so much confidence as in good beech tar creasote. In any case of this phthisis of the skin, with which we are now concerned, it is a remedy which, applied in the concentration and in the manner indicated, deserves every consideration. This supposition has, moreover, been proved in practice to be correct. The salicylic creasote plastermull is a remedy which brings about a cure of lupus without any extraneous aid. The strongest plaster necessary for the case should always be employed at the commencement, since at first a relatively normal skin-surface has to be attacked; under these the lupus tubercles can be seen to soften and break down. The action can be accelerated, as is the case with all plastermulls, by covering them with hot poultices. The dressing should be changed once, or at the most twice, daily, with or without the application of cocaine, and the parts cleaned, according as the susceptibility of the patient will allow it, with linimentum calcis, oil, lard, or even with soft-soap and hot water. As soon as it is found that with this simple treatment the excavations are getting shallower, and that no new ones are appearing, we may assume that the whole of the lupus nodules have fallen out. It is then advisable to have recourse to weaker salicylic-creasote plastermulls, and finally, when the lupus seems to be totally destroyed, but the process of skinning over is sluggish and a quicker completion is wished for, to still weaker means, such as mercurial-carbolic or zinc-salicylic plastermulls, or to a simple healing remedy like iodoform, ichthyol, etc. Smaller and more isolated nodules are generally completely cured under the salicylic-creasote plastermulls, even those which are richest in salicylic acid. In general, I consider it better to let the strong plastermull lie somewhat longer than is apparently necessary, so as to give a chance to even the deepest-lying nodules to shell out,

and for the same reason the plaster should overlap the edge of the lupus patch by at least half an inch.

This is the simplest possible form of the treatment of lupus; but it can, of course, be further developed and enriched by combining it with other methods according to the individual case. These various modifications, which cannot all be mentioned here, do not alter the original idea, which consists in keeping up a continual but never excessive exfoliation of the affected portions by means of a highly elective substance (salicylic acid), which destroys the weaker tissue of the new growth, whilst a second substance (creasote) renders the process painless and at the same time exercises a directly destructive action on the bacilli.

A by no means slight advantage of this process of treatment is the cosmetic improvement which it effects, for in this concentration the salicylic acid assists powerfully in removing old stringy and lumpy scars, and after every removal of the scabs which it produces the surface is found to be in a distinctly smoother condition. On the other hand, it leaves sometimes a longer-lasting redness, which probably results from a paresis of the capillaries or from the destruction of the stratum granulosum, the layer which causes the white tint of the skin. This is best met by using an ichthyolic ointment or by painting on a zinc-ichthyol-gelatine preparation afterward.

The Management of Placenta Prævia.—Malcolm McLean, in a recent article on the management of placenta prævia, thus concludes:

1. In any case, avoid the application of all chemical styptics, which only clog the vagina with inert coagula, and do not prevent hemorrhage. At the very first, the patient should be put in a state of absolute rest, body and mind, and a mild opiate is often desirable at this stage, to quiet irritation.

2. Inasmuch as the dangers from hemorrhage are greater than all else, to both mother and child, at the earliest moment preparations should be made to induce premature labor, and labor being once started, the case should be closely watched to its termination by the accoucheur.

3. In primiparæ and mothers with rigid tissues, the vagina should be well distended, by either the colpeurynter or tampon, as an adjuvant to the cervical dilatation.

4. In the majority of cases, and in all cases where there is reason to believe that rapid delivery may be required, it is more safe to rely on the thorough, continuous, hydraulic pressure of a Barnes's dilator than on pressure on the fœtal parts.

5. Where the implantation is only lateral or partial, and where there is no object in hurrying the labor, bipolar version, drawing down a foot and leaving one thigh to occlude and dilate the os, may be practised, according to the method of Braxton Hicks, except in cases where the head presents well at the os, when,

6. The membranes should be ruptured, the waters evacuated, and the head encouraged to engage in the cervico-vaginal canal.

7. In the majority of cases, podalic version is to be preferred to the application of the forceps within the os.

8. In some cases, in the absence of assistance or the necessary instruments, the complete vaginal tampon, in part or wholly of cotton, may be applied and left *in situ* until (within a reasonable time) it is dislodged by the uterine contractions and the voluntary efforts of the mother. In case of favorable presentation—occiput or breech—the tampon will not materially obstruct the descent of the child; and in some cases the tampon, placenta, and child will be expelled rapidly and safely without artificial assistance.

9. The dangers of septic infection by means of the tampon or India-rubber dilators are so slight, if properly used, as not to be considered as seriously impairing their great value.

10. Whenever it is possible, dilatation and delivery ought to be deliberately accomplished, in order to avoid maternal lacerations.

Finally. As cases of placenta prævia offer special dangers from post-partum hemorrhages, septicæmia, etc., the greatest care must be exercised in every detail of operation and nursing to avoid conveying septic material to the system of the mother.—*Canada Medical and Surgical Journal*, October, 1886.

Prophylaxis of Cooks' Conjunctivitis.—Dr. G. C. Simmons, of Sacramento, Cal., writes as follows to the *Boston Medical and Surgical Journal*, of October 7, 1886:

A Chinese cook in our employ had suffered repeatedly from attacks of conjunctivitis owing to his labors over a hot cook-stove. These were soon cured by the use of collyria of borax and camphor, and a caution as to the real cause. But only to return. To our surprise, not long ago he appeared in large Chinese spectacles—tortoise-shell rims and plates of mica, transparent and non-magnifying. With these he goes happily to his work, and so far with no fear of a return of the conjunctivitis, and reasonably, too, as mica is notably a protector against heat. Consulting standard works on ophthalmology I find no reference to their use in occupations exposing one to conjunctivitis from heat, and the idea is certainly worthy of our remembrance.

Acute Melancholia caused by Impacted Feces.—H. A. Hutchinson, M.D., presents the following case in the October number of the *American Journal of Insanity:* Mrs. S., aged forty years, was recently admitted to the Western Pennsylvania Hospital for the Insane.

At the time of her admission she was suffering from acute melancholia, was very weak, extremely emaciated, skin bronzed, dry and harsh, hair dry and falling out, and all the secretions of the body were perverted.

In her conduct she was very suicidal, destructive of clothing, and presented the appearance of abject despair. Conversation was entirely incoherent, though she gave evidence of a few systematized delusions—that her body was infected with vermin and snakes, and her clothes with moths, which she tried vainly to drive away by frequently tearing her clothing and burning it.

The previous history of the case, obtained from her husband, was that of a gradual decline in bodily health during the past year, and the appearance of insanity within the last three weeks. Constipation had been constant, and more recently there had been inability to void urine, requiring the use of a catheter. Menstruation had ceased some years previously.

The family history told of three other members who had been insane, neither of whom recovered—two sisters and an uncle. The cause of insanity was stated as unknown. The medical treatment combined tonics, frequent applications of blisters to the nape of the neck, laxatives, and at night large doses of bromide of potassium and chloral.

Laxatives, when employed, were said to have always caused free movements of the bowels, but their use was followed by increased excitability.

Upon being admitted to the hospital, the patient was immediately placed in bed, and thoroughly examined.

In addition to the already detailed marked evidences of her exhaustion, a distinct tumor could be felt through the thin abdominal walls, following the course of the rectum and sigmoid flexure, and making the introduction of a catheter to relieve her distended bladder almost impossible.

The tumor was at once thought to be an accumulation of hardened feces, and the cause of ill-health and consequent insanity. Removal of the mass was accomplished only after much persistent effort for several days, and the employment of the various suitable injections, together with the free use of the scoop.

Rapid improvement in the patient's mental condition followed this procedure, and in less than one month she was discharged in perfect health of body and mind.

Pomade for use in Blenorrhœa.—Unna commends a composition of the following formula as a local application in cases of chronic urethritis:

Nitrate of silver	1 part.
Balsam of Peru	2 parts.
Yellow wax	2–5 "
Cacao butter	100 "

A metal sound, smeared with the pomade, is introduced into the urethra. In some cases four to six such applications have been sufficient for the production of a definitive cure. In others, it has been necessary to repeat this series from two to four times. In certain patients, also, it has been found needful to supplement this treatment by injection of sulphocarbolate of zinc.—*L'Union Médicale*, September 11, 1886.

Albuminuria in Diabetes.—Dr. Robert Maguire read before the Pathological Section of the Brighton meeting of the British Medical Association, a paper entitled as above, of which the following is an abstract:

Albuminuria is a complication of diabetes which is frequently overlooked, and which may be of grave or of insignificant import, according to the various conditions under which it may arise. It may occur as a chronic or as an acute albuminuria. In the chronic form the albuminuria is associated with an organic change in the kidneys and urinary tract, or it may be due to derangement of the circulatory apparatus of the kidney.

In *post-mortem* examinations made in long-standing cases of diabetes, it is common to find the kidneys hard and tough; and, when examined microscopically, they show an overgrowth of the interstitial tissues round the vessels and glomeruli and between the tubules. The capsule of the kidney may be slightly adherent; but it is rare to find a condition which could be called granular kidney. Doubtless, this interstitial overgrowth has for its cause the irritation of the kidney by continuous overwork. It is a condition which, as might be expected, is occasionally associated with the presence of albumen in urine, but in only small amount. Such albuminuria has usually little or no influence upon the course of the diabetes; this goes its way as if no such complication had arisen. It must be remembered that one is now speaking of diabetes complicated by interstitial overgrowth in the kidney, and not of those cases of gouty interstitial nephritis, which may present at times an insignificant glycosuria, in addition to the persistent albuminuria. The albuminuria has in these two conditions an essentially different prognosis. Occasionally, however, as Dr. Pavy has pointed out, albuminuria may, to a certain extent, displace a glycosuria, and become the prominent symptom of the case.

Fatty degeneration of the kidney may, again, occur in diabetes, and give rise to an albuminuria, which exerts little influence on the progress of the case.

There is another organic change which I have sometimes seen in *post-mortem* examinations on diabetics, and which may conceivably give rise to albuminuria, although I offer this as a suggestion, and without proof of any kind. I allude to the thickening of the walls of the bladder, and with this—in all probability, in consequence of this—a dilatation of the ureters and of the pelvis of each kidney; in fact, a mild condition of hydronephrosis. We know from experimental evidence that ligature of the ureters will cause albuminuria, and it is possible that continuous high pressure in the pelvis of the kidney, produced in the way I have mentioned, might determine an albuminuria in diabetes.

Such are the organic kidney changes under which diabetic albuminuria may occur; and it is somewhat remarkable that these, which under other conditions would be considered grave lesions, are here commonly of so little consequence. This becomes almost a paradox, when we find that one form of functional albuminuria which may occur in diabetes is a very bad omen. In the later stages of diabetes as asthenia progresses, the heart begins to fail, and one of the early signs of this is a slight albuminuria, due to the deficient circulation of blood through the kidneys. At the same time, we find, of course, general asthenia, and not unfrequently nervous symptoms, such as great depression of spirits with hysterical phenomena, mental torpor, and drowsiness. This, however, is not true diabetic coma, and must not be confused with it. The albuminuria is in itself of little consequence, but the general condition producing it is very serious. The cardiac asthenia may in some cases be recovered from, under the influence of cardiac tonics, but in the majority of cases it is a near precursor of the final break-up.

I wish to call the special attention of the meeting to an acute form of albuminuria, which occurs in connection with diabetic coma, and which is of very serious prognosis. In pursuance of a complete examination of the urine of a patient suffering from diabetic coma of the dyspnœic type, I found a considerable quantity of albumen, which had certainly not been present before the coma set in. The patient died, and at the *post mortem* examination there was seen, in well-marked form, the "necrosis" of the epithelium lining the convoluted tubes and Henle's loops, described by Ebstein. Another

patient, under the care of Dr. Morgan in the Manchester Royal Infirmary, showed albuminuria about twenty-four hours before noticeable signs of diabetic coma appeared. I mentioned this in a note to a review in the *Medical Chronicle* for December, 1884, and since then I have never failed to find albumen in the urine of those patients suffering from diabetic coma of the true "Kussmaul's" type, with whom I have met. I have not a large number of cases to record, about eight or nine in all, but I find that Stokvis, of Amsterdam, at the Wiesbaden Congress of this year, has stated as his experience also that albuminuria is of very frequent occurrence in diabetic coma.

A case which came under my notice recently may be mentioned, in that it not only illustrated this point, but was also of medico-legal importance. A gentleman's coachman, who had previously been in apparently good health, although it was afterward elicited that he had been losing flesh for about a year, complained one day of a slight pain and uneasiness in the abdomen. For this, a druggist gave him a bottle of medicine, of which he took one dose, and died comatose four hours afterward.

The medical gentleman who was called in invited me to make the *post-mortem* examination. On opening the skull, a strong sweet smell of aceto-acetic acid was perceived, which became almost overpowering when the thoracic and abdominal cavities were opened. The liver was enlarged and congested, the kidneys large, in color mottled yellow and red, and on section the thorax was found to be greatly increased in extent. A quantity of urine drawn off from the bladder gave the ferric chloride reaction of aceto-acetic acid, contained a large quantity of sugar, and in addition a considerable amount of albumen. A small amount of albumen is frequently found in urine drawn from the bladder after death, but such could not be the origin of the large amount found in the above case. On microscopic examination of the kidneys, I found the glomeruli intact, but the epithelium of the convoluted tubes was greatly swollen, in some parts hyaline, in others appearing as a confused granular mass, which was very difficult to stain, and which showed very few nuclei. In many parts, too, the epithelium was detached from the walls of the tube. This condition of the kidneys was, therefore, the probable cause of the albuminuria. The pathological signs showed that the case was one of diabetic coma, and it was afterward proved that the medicine the man had taken contained nothing harmful.

Recently, in a case of diabetic coma, I analyzed the albumen which was present in the urine, and found that it consisted of two and a half parts of serum-albumen to one part of serum-globulin, a proportion which I have observed to be a common one in severe organic lesions of the kidneys.

The relation of this albuminuria, and its accompanying kidney change, to the diabetic coma, is of great importance, but uncertain. The coma is certainly not uræmic coma, but all the later researches prove that it is due to the circulation of some poisonous matter in the blood, whether this be acetone, aceto-acetic ether, aceto-acetic acid, or oxybutyric acid. Two possibilities seem open: one is that the poisonous matter in the blood irritates the kidneys, and so produces the change in the epithelial cells, which change is quite analogous, so far as the convoluted tubes are concerned, to that produced by a large dose of cantharides. In support of this, it should be noted that, in the experiments in which attempts have been made to produce diabetic coma by injecting into the blood the various substances mentioned above, albumen has occasionally appeared in the urine. The other possibility is that something more than the presence of the poisonous matter in the blood is necessary to produce coma. It may be that this further determining influence is the epithelial change in the kidney, the sign of which is the albuminuria described. It will be remembered in this connection that, in the researches hitherto published, the complete symptomatology of diabetic coma as seen in man has not been produced in animals, by the injection of any poisonous matter into the blood, so long as the kidneys have been intact.—*British Medical Journal*, September 18, 1886.

DISLOCATION OF THE TESTICLE.—DR. SMITH reports, in *The Indian Medical Gazette*, for July, 1886, the case of a soldier who was struck with a rifle-butt in the scrotum. He complained of great pain, and examination showed absence of the left testicle from its normal position, and the presence of a small, rounded tumor, very sensitive on pressure, in the groin about at the internal ring. Nothing was done for the man, except to relieve him of heavy work. Some months later the patient died of beri-beri, and on post-mortem examination the testicle was found lying within the abdominal cavity, where it had contracted some adhesions to the peritoneum. A slit was seen at the internal ring, through which the little finger could be passed into a pouch running toward the scrotum. The man stated that the two testicles had always been present in the scrotum up to the time of the accident.

JEQUIRITY IN TRACHOMA.—DR. W. F. SOUTHARD formulates as follows the results of his experience with jequirity:

1st. The freshly powdered bean acts fully as vehemently as the solution, though in some cases, perhaps, the effects are not felt as quickly.

2d. The croupous membrane is formed fully as rapidly as after using the solution.

3d. The powder clears the cornea of pannus fully as effectively.

4th. The pain may be as severe from the use of the powder as from using the solution.

5th. Should spots of trachoma be left after the first application of the powder, it can be reapplied in from six to twelve days, thus localizing its action.

6th. Its permanent effects are the same as those produced by the solution.

7th. It appears to be much the safer remedy, for it does not seem necessary to limit its use to old trachomas with pannus.

8th. Attention is especially directed to the fact that great caution is necessary in using this remedy, in any form, on account of the unexpected and somewhat alarming constitutional effects sometimes produced.—*Pacific Med. and Surg. Journal*, October, 1886.

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THORACENTESIS FOR PLEURITIC EFFUSION.

AMONG the subjects which occupy a sort of middle ground between the general practice of medicine and that of surgery, none is of greater interest or of greater importance than the question of the proper management of serous effusion into the pleural cavity. In regard to the treatment of empyema there is little difference of opinion; but in the treatment of purely serous effusion different practitioners hold diametrically opposite opinions. Some rely almost exclusively upon medicinal remedies, while others believe in early operative interference.

There are two principal reasons assigned for preferring medicinal treatment: First, it is sufficient in the great majority of cases to effect a cure, and it is safe; and, second, operative procedures are not more efficient, while they are dangerous.

In the defence of operative interference these reasons are directly reversed, and puncture of the wall of the thorax is asserted to be the best way of getting rid of the immediate and remote effects of an effusion, while, if properly conducted, it is almost entirely devoid of danger.

To decide which of these opposite opinions is correct, or what mean between them may be adopted, is not an easy task. But something may be gained by examining the grounds upon which they rest.

The efficiency of purely medicinal measures in the treatment of moderate pleural effusions cannot be doubted, nor can the assertion that it has sufficed for very large effusions be denied. To select but a few illustrations of this fact, BARBE, who is not afraid to operate, reports, in the *Archives Générales de Médecine* for May, 1885, a large number of cases cured by the use of iodine externally, and of certain internal remedies. In some of his cases the effusion was estimated at as much as four pints. By the method which Körner, of Graz, first used in 1863—which consists in the withholding of fluids from the patient and in the administration of salt—some remarkable results have been reported. Thus GLAX, in the *Zeitschrift für klinische Medicin.*, Bd. ix. Heft 5, records twelve cases in which the exudate filled or almost filled the pleural cavity, and in which a cure was effected in an average of twenty-two days. Similar results have been reported by other trustworthy observers.

In the face of such facts, and of the opinion of many of the best clinicians, it must be acknowledged that in most cases the medicinal treatment of pleural effusion is entirely efficient, so far as getting rid of the effusion is concerned. Whether or not it is entirely safe, depends somewhat upon the way in which this word is applied. It is safe enough so far as the immediate result is concerned. But is it safe when the ultimate issue of the case is considered? Those who favor puncture of the chest wall assert that there is great danger to the lung from delaying its expansion, danger of adhesion, of consolidation, of retraction of the chest wall, and of permanent dislocation of other organs.

These accusations are somewhat vague, and, so far as we know, are not supported by any carefully prepared statistics. Still they deserve consideration, and the well-recognized fact that attacks of pleurisy often precede the outbreak of phthisis, to which CHAUVET has recently called attention in the *Lyon Médicale*, May 24, 1885, may indicate some imperfection in the method of treating pleurisy. This point, however, should not be strained any more than another, which is made against operative interference, that the outbreak of phthisis which sometimes follows is to be attributed to it.

The negative evidence in favor of the medicinal treatment of pleural effusion lies in the asserted danger of puncturing the pleural cavity. This is said to consist in the risks of septic infection, of converting a serous effusion into an empyema, of arousing into activity a latent tendency to tuberculosis, and a certain danger of wounding the lung. The last of these dangers is hardly of much significance, the next to the last probably owes its terrors to the mistake of taking *post hoc* for *propter hoc*. The danger of septic infection and of converting a serous effusion into an empyema is very real, and there have been only too many exemplifications of it. But it is an error to suppose that the danger is inevitable. With proper antiseptic precautions there is scarcely any reason why tapping the chest should subject the patient to risk of this sort. It is possible, of course, that the aspirating needle or trocar may pass through the

fluid and wound the lung, so that from it a source of putrefaction or of specific disease shall gain access to the cavity of the pleura. But this is very unlikely to happen, and no virulent material ought to come from without if the operation be done correctly. That this, however, does sometimes take place only shows that those who have had such results have something to learn in regard to the principles and practice of asepsis.

It cannot be maintained that there is any considerable danger in the operation of thoracentesis when done carefully, and the choice between it and medicinal treatment must be determined by the estimate of their relative efficiency, and especially by the suitability of either to each particular case.

In some cases the most conservative medical man feels constrained to tap, in others all but extremists would hesitate to do it. Aufrecht, in the *Berliner klinische Wochenschrift*, No. 10, 1886, maintains that small effusions—which may be cured by salicylic acid—should not be tapped, but when the effusion reaches the third intercostal space in front, the fluid should be let out; and this he believes to be a good rule even when the symptoms do not seem to threaten life. But it is not well always to empty completely the pleural cavity. Aufrecht thinks that more than five pints should never be withdrawn at one sitting, and Barbe, in the paper above referred to, is of the opinion that tapping need not be resorted to until the accumulation amounts to about two quarts, and that only half of this should be drawn off at a time. His opinion is founded on an experience of fourteen cases, in which he made twenty-seven punctures, and in which there were no subsequent paroxysms of cough, or serous expectoration. In Aufrecht's experience morphia subdued the paroxysmal cough perfectly.

Very recently Heitler, in a paper in the *Centralblatt für die gesammte Therapie*, for June, 1886, has advocated active interference in pleural effusions. He does not believe that early puncture can abort a pleurisy, and recent French experience has demonstrated that putting such a belief into practice has led to an increased mortality. Aufrecht does not overlook the fact that desperate cases have recovered without tapping. But he regards the presence of either a very large effusion, a rapid rate of effusion, or a long persistence of the effusion as a sufficient indication for operative interference. What he means by long persistence of the effusion may be gathered from the statement that thoracentesis should be practised if the effusion remains stationary for two or three weeks, and shows no tendency to resorption. Stöhr, in an inaugural thesis, Erlangen, 1885, came to much the same conclusion. He analyzed fifteen cases of operation, and considered the proper indications to be urgent symptoms, great effusion, rapid accumulation, and considerable displacement of the viscera.

In all that has been said thus far, it has been assumed that the discussion refers to simple serous effusions. For purulent, ichorous, or hemorrhagic effusions, the propriety of tapping, drainage, and washing-out, seems to be beyond question. But even in deciding what is to be done for an effusion supposed to be purely serous, it must not be forgotten that it cannot always be certainly determined without resort to hypodermatic aspiration. Polain, in the *Gazette des Hôpitaux*, Nos. 38 and 130, 1885, has asserted that there are no certain signs of the nature, nor of the amount of an effusion. This view may be an exaggerated one; but the possibility of error in this respect should not be overlooked.

In conclusion, we think that it may be said that medicinal treatment suffices for the relief of the great majority of cases of serous effusion in the pleural cavity, but that tapping should be resorted to when a rapid accumulation produces dangerous symptoms, or when long persistence of a large effusion makes it likely that this may cause irremediable changes in the lung or chest-wall. The assertion that phthisis may be provoked by a properly conducted tapping is not borne out by a study of a large number of cases, and the risk of converting an innocent effusion into a dangerous one, we believe to be dependent upon circumstances which can be avoided.

THE TREATMENT OF GONORRHŒA.

Those who have the largest experience in the treatment of gonorrhœa disclose the unsatisfactory condition of its therapeutics in the numerous and different plans which they adopt and recommend for its cure, in most of which a certain period of absolute rest seems to be essential. And every practitioner could doubtless testify regarding cases which have refused to get well in the orthodox way, and which have somehow been apparently cured by a druggist's or friend's prescription, while the patient continued to do the very things which his physician had charged him to avoid doing. The discovery of the so-called gonococcus led many to hope that at last the right plan of treatment was clearly indicated, and that the use of a germicide would be sure to effect a cure. Unfortunately in this, as in other connections, the germ theory has proved rather of speculative interest than of practical utility.

The fact remains that anti-bacterial injections cannot be said to be any more efficient in the treatment of gonorrhœa than others which have no such specific action; and their effect may be as fairly attributed to their influence in allaying the inflammation

as to any action they may exert upon its supposed germ.

Nor are injections alone always satisfactory in the treatment of gonorrhœa, for which reason they often may, and sometimes must, be supplemented by internal medication; while sometimes peculiar circumstances make it impossible for injections to be used, and then internal medication must be the sole reliance. The importance of such medication cannot be doubted, and it is worth while to call attention to a recent study of the subject by Posner, in the *Deutsche medicinische Wochenschrift*, of August 26, 1886.

Posner rightly regards gonorrhœa as a cyclic disorder, which, under favorable circumstances, tends to a spontaneous cure, and the requisite time for which may be shortened by judicious treatment. His own experience has led him to think well of the internal administration of the oil of sandalwood for this purpose, which, when he uses it from choice, he supplements with injections of resorcin toward the second or third week. The length of time required for a cure, he finds to be about three or four weeks. He has used internal medication alone in those cases in which all authors agree that injections are to be avoided, such as those in which the gonorrhœa has passed the barrier of the compressor urethræ, and has led to epididymitis, prostatitis, cystitis, or other complications.

The best form of administration of the oil of sandalwood is in the French capsules, containing each five drops; of which he thinks ten or twelve may be given daily. Posner has also given the oil combined with a little oil of peppermint, and Lublinski has ingeniously given it on peppermint drops with satisfactory results.

The use of pure oil of sandalwood is not new, nor are its merits underrated in this country. It is better borne by the stomach than is the oil of copaiba—which is more active—and it undoubtedly relieves tenesmus and strangury while exerting a beneficial influence upon the urethritis. No internal medication, however, can entirely supersede the use of injections, which should be employed whenever circumstances permit, and made of materials suited to the condition of each case. In the stage of acute inflammation the blandest and most soothing injections must be employed, and after this stage is passed there is probably nothing better than sulphate of zinc of the strength of two grains to the ounce of water.

An important point in the use of medicated injections is, not simply to have the urethra washed out by the patient's urine—as is usually prescribed—but to order that the urethra shall be several times syringed out with water as warm as can be comfortably borne. When this is systematically done, injections are most efficient. And when, with the proper use of injections, the administration of oil of sandalwood, or of copaiba is combined, we have what in the present state of our knowledge is the most satisfactory method of treating gonorrhœa.

Physiologists have long maintained that the power of pepsin is limited to the digestion of albuminoids, and this indeed is unquestionably its sole functional significance. An entirely distinct field of observation, however, is opened up in the question of the influence of the digestive ferments upon ingested drugs.

In the *Bollettino della Società tra i cultori delle scienza mediche in Siena*, 1886, No. I., Torsellini describes an interesting series of experiments upon the effect of pepsin upon the solubility of calomel. The observations in question took the form of artificial gastric digestions, and showed that pepsin in the presence of calomel materially increased the solubility of the latter, without the production of corrosive sublimate, in spite of the fact that the solution contained two-tenths of one per cent. of hydrochloric acid. Pepsin alone, in the absence of dilute acid, was, of course, without effect. Control experiments showed that while hydrochloric and lactic acids, in strengths of one-tenth to two-tenths of one per cent., increased the solubility of calomel, this effect was greatly augmented by the addition of pepsin, an effect evidently due to the direct action of the ferment.

At a recent meeting of the Chicago Medical Society, Dr. Schrimer exhibited a case of actinomycosis in a man twenty-five years of age, who had had, for several years, abscesses and fistulæ in the submaxillary regions. In May abscesses were opened in the neck, and the pus contained the characteristic yellow granules. Latterly cough, with symptoms of lung disease, had appeared, and the actinomyces were found in the sputum. This is the first instance of advanced actinomycosis in man which has been described in this country. In Dr. Murphy's cases, also in Chicago, the trouble was confined to the jaws, and readily cured by operation.

Israel has recently reported a case which bears out his views of the origin of the trouble in carious teeth, which form a nidus for the development of the parasite. In an instance of actinomycosis of the lung, there was found, in one of the foci of disease, a small foreign body, which proved to be a fragment of a tooth, which had been aspirated into the lung, and had probably carried with it the germs of the disease.

We have the pleasure of acknowledging the receipt of the following contributions to the fund for the relief of the Charleston Medical College:

Dr. Roberts Bartholow, Philadelphia	$25
Dr. Wharton Sinkler, Philadelphia	10

REVIEWS.

"Haschisch." A novel. By Thorold King. 12mo. pp. 314. Chicago: A. C. McClurg & Co., 1886.

The title and the cover of this book are suggestive, leading its buyer into vistas of pleasure, which, like the dreams of haschisch, are found only a delusion.

The story is one long since stereotyped in fiction. Two brothers love the same girl. One of the brothers, just returned from the diamond fields with abundant wealth, is murdered with chloroform; presumably by a friend, who in a position of trust had, by his carelessness, permitted his employers to be robbed, and had thereby lost his position. This young man, Gordon Wright, is convicted of the crime, and sentenced to imprisonment for life, though the evident intention of the author to have him pardoned in the near future is disclosed by the previous introduction into the story of Philip Arnold, whom the murdered man, the night previous to his death, charged with dishonesty in the management of the affairs of a ward committed to his care.

Madge Irving, Gordon Wright's affianced, of course does not believe in his guilt, and, as the story progresses, the plan to prove him innocent takes shape. Into this Kenneth, the brother of the murdered man enters, but unfortunately falls sick of a fever, which gives Miss Madge opportunity to study the symptoms, and weigh the chances of his recovery with all the zeal of a female devotee to the study of physic, which, indeed, from her success and judgment, in this case, she should have been. Kenneth at last recovers, and after a tedious convalescence, resolves to sail for Europe in search of Philip Arnold, upon whom the reader has long since fastened the crime. The physician who attended him during his illness, was a young man whom he had met abroad, and with whom he was on terms of intimacy. Philip Arnold is finally found, and the labor of proving his crime begun. Kenneth engages himself to the suspected man as a servant, and sends for his friend, the young physician, who, accompanied by a Mr. Smith, sails for Paris, to assist in the business of ferreting out the crime.

Now is the reader introduced to haschisch, by means of which it is proposed to ensnare the villain of the story. A long description of the action of the drug, with its history is given, with the idea of explaining how the culprit is to be caught. By the aid of a French Professor, Arnold is at last duped into partaking of the drug, and under its influence goes through a pantomime in which are enacted the scenes of the murder. On awakening from his haschisch dream, the murderer hastens home, and under the fear that he has disclosed something to his detriment, compels his servant to relate all his actions while under the influence of the drug. This, Kenneth does, and Arnold attempts to murder him at the point of recital where he is charged with the death of Austin Hardy, but foiled in his attempt at this second crime by the appearance of Smith and the young physician, he cuts his throat with a razor which is happily nigh to end the story, which otherwise might have been unduly prolonged through another trial and conviction. Gordon Wright is pardoned and restored to his former position, the crime of the robbery being, like that of the murder, fixed upon Philip Arnold, and everyone but Smith enters into the bliss of matrimony, the wise forethought of the author no doubt leading him to take no further steps for the perpetuation of an already famous name.

The medico-legal aspect of the story, if indeed the author seriously intended there should be any, is without value. The days of inquisition, whether of drugs or torture by wheel and flame, are long since passed. Law does not require a criminal to condemn himself, and the administration of a drug that destroys self-control, and abolishes the will, is lawless even for the ends of justice. As to the use of chloroform for criminal purposes, we may say, it might be so used, though its employment is exceedingly doubtful, and its success uncertain.

A Guide to the Practical Examination of Urine, for the Use of Physicians and Students. By James Tyson, M.D., etc. Fifth edition. Philadelphia: P. Blakiston, Son & Co., 1886.

The several newer tests for sugar, albumen, and the various proteid substances are given much space in the fifth edition of Professor Tyson's "Practical Examination of Urine." The index refers to thirteen tests for the presence of glucose in the urine and seven for albumen. The only fault that can be found with the book is that it gives a superabundance of somewhat complicated tests, many made with chemicals of an uncommon sort, and does not quite sufficiently explain, for a practitioner's handbook, which are the most to be recommended. It seems to us time, for instance, that a process so coarse as Moore's potash test for sugar should be omitted from text-books or the student warned against it, especially as to its behavior with mucin, for when liquor potassæ is boiled with urine containing that substance, the odor and color supposed by Moore to be "characteristic" of grape-sugar result.

And would not one test for indican be enough?

Jaffé's is probably the better of the two given, but it ought to be mentioned that unless the solution of calcic hypochlorite be perfectly fresh the test will fail—and we may add that if the resulting color be red instead of blue, iodides are present in the urine, so that the method may also be made useful in ascertaining their absorption. Lieben's iodoform test for acetone may, it should be said, be used for ordinary clinical purposes, without first distilling the urine.

No one who has used the former editions of Professor Tyson's most valuable little book, can help being grateful to him for so much information gathered into so succinct and convenient a form, and in spite of the small criticisms we have made of minor matters, we are fully sensible of its usefulness and excellence, and hope to see it improving and keeping up to date with annual future editions.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 7, 1886.

The President, A. Jacobi, M.D., in the Chair.

Dr. Julius Althaus, of London, a Corresponding Fellow of the Academy, read a paper on

SOME PHASES OF CEREBRAL SYPHILIS.

(See page 421.)

Dr. R. W. Amidon said that he would like to call attention to one factor in the production of syphilitic coma which the learned author of the paper had not specifically referred to, viz., the factor of a weak heart. Dr. Althaus, he felt sure, however, would be willing to acknowledge its agency, since he had mentioned among the exciting causes over-exertion, anxiety, and alcoholic and sexual excesses, all of which conditions are recognized as conducing to weak heart. He thought that this important factor did not receive sufficient attention from the profession.

The occluding disease of arteries was well understood, but alone he did not think it sufficient to account for the coma. Taken in connection with a weak heart, however, it would satisfactorily account for all the phenomena so graphically described in the paper.

Dr. A. D. Rockwell remarked that as our experience extends in the domain of nervous diseases we must necessarily become more and more impressed with the importance of syphilis in this connection. Patients often state, with honest conviction, that they have never had syphilitic trouble; and yet the subsequent history of their cases proves conclusively that they have. Dr. Rockwell said he had had no personal experience with syphilitic coma, but he thought that perhaps a case which he had had under his care some time ago, might prove of interest in connection with the subject of the paper. It was one of spastic paresis, with some difficulty of utterance. From the beginning there had been a facial paralysis. This had been followed by aphasia and hemiplegia, which afterward disappeared, and then reappeared again. The patient denied that he had ever had syphilis, but a course of antisyphilitic treatment resulted in very marked benefit.

Dr. Robert W. Taylor said that he was in hearty accord with the author of the paper, in much that he had said, but thought that he had scarcely done full justice to certain observers in the historical part of it. It was true that two great pathological epochs in connection with syphilis were inaugurated by Virchow and Hübner; but these were outshone, he believed, by certain clinical epochs. The Strassburg thesis of Hildebrand shows that about 1848 and 1850 there was some professor at that university who had taught a knowledge of cerebral syphilis. The next epoch commenced about 1863, with the writings of Lancereaux, Lamier *fils*, and other French authorities, and these were the text-books from which a vast amount of our knowledge had been obtained. Without detracting from the labors of Hübner, he thought that a word of acknowledgment was due the late Walter Moxon, of London, for his remarkable contributions on syphilitic disease of the arteries, published in the *Guy's Hospital Reports*.

Dr. Althaus's description of syphilitic coma was clear, systematic, and admirable in every way; it was evidently the result of careful bedside study. As regards syphilitic hemiplegia, Drs. Van Buren and Keyes, in this country, had studied the subject very thoroughly, and all the varieties and symptoms described by Dr. Althaus had been noted in the paper which Dr. Keyes wrote a number of years ago, embodying their researches, the main points of which had now been incorporated in several text-books. He believed that certain concomitants, besides syphilis, were necessary to produce these severe neuroses, and among these he would rank as of great importance alcoholic and sexual excess, and unnatural sexual habits.

Dr. Landon Carter Gray, of Brooklyn, said that some questions brought up by the author were, he thought, worthy of some little discussion. The pathology of these cases of syphilitic coma is a subject which still deserves a great deal of study, and personally he was hardly prepared to accept Dr. Althaus's conclusions. The textural changes which took place in the brain itself were out of all proportion to the arterial changes, as was shown in two autopsies which he had had the opportunity of seeing, in cases where the coma was the predominant symptom before death, the paralysis present being secondary. In both cases the presence of arterial disease was evident not only to microscopic inspection, but also to the naked eye. Yet this, so far as he was able to judge, was not sufficient to account for the symptoms noted during life. In one of the cases there were numerous textural changes, including softening amounting to pulpiness, with lepto-meningitis and syphilitic neoplasms. The mere theory of some occlusion of the basilar artery, he thought, was not enough to account for the coma. Again, if the coma were very profound, it might be impossible to say whether any paralysis were present or not.

As to the matter of treatment, he was somewhat surprised to hear the views expressed by Dr. Althaus. He depended apparently entirely on mercurials, and had little or nothing to say in regard to iodide of potassium. As for himself, he had some time since given up the use of mercury entirely in these cases, as he had never seen any beneficial results from it. He had had indubitable evidence in his experience of the superior value of the iodide, and he believed that this was the experience also of the great majority of neurologists in this country.

Dr. Putzel said that he was glad that the question of therapeutics had been taken up, and stated that he agreed entirely with the author of the paper in regard to the superiority of mercury. It was now about six years since he had become convinced that syphilis did not yield, or at least but very slowly, to iodide of potassium. Formerly he employed the bichloride of mercury; but more recently he had found much better results from the use of inunction. It is his custom to employ this until the teeth begin to be touched, and then discontinue it. In connection with this, small doses of iodide of potassium sometimes seem of service.

As to occlusion of the basilar artery, which Dr. Althaus would assign as the direct cause of syphilitic coma, it seemed to him that we were likely to have a number of vessels injured, but not sufficiently to cause occlusion. The blood-supply would be diminished, but this would not be sufficient to cause total occlusion until the end.

CORRESPONDENCE.

THE INTESTINAL SUTURE OF APOLITO; ADDITIONAL REMARKS.

To the Editor of The Medical News,

Sir: In the number of The Medical News for August 28, 1886, I presented an account of this form of

suture, with illustrations, but could not at the time state when the method originated, and presumed that it might have been more recent than it now appears to be. Additional information just received from the same source shows that the suture originated with Dr. Nicola Apolito, of Cagnano, Province of Capitanata, one of the Southern provinces of Italy, and was described in the *Osservatore Medico di Napoli* for July 1, 1841. It is therefore older than that of Gély, and not a modification or simplification of it.

Robert P. Harris, M.D.

Philadelphia, October 12, 1886.

NEWS ITEMS.

A Resignation from the International Medical Congress.—We are informed that Dr. E. Williams, of Cincinnati, has resigned the Presidency of the Section of Ophthalmology in the Washington Congress.

The title of Doctor was invented in the twelfth century, at the first establishment of the universities. William Gordenia was the first person upon whom the title of Doctor of Medicine was bestowed. He received it from the college at Asti in 1329.

Double Embryo in a Single Blastoderm.—Professor Legge, in a communication made to the Eustachian Society of Camerire, states that he has had the good fortune of meeting with, in a fowl's egg, at about the third day of incubation, two embryos in a single blastoderm, joined together at the summit.

Obituary Record.—Died, in New York, on October 7th, in the 89th year of his age, Dr. James Anderson. Notwithstanding his advanced years, he was in his usual health and vigor until two days before his death, when he was attacked with cholera morbus.

Dr. Anderson was born at the Battery on February 21, 1798, and was descended from an old Dutch family. He received his early education in the city schools, and began the study of medicine under Dr. David Hosack. In 1821 he was graduated from the College of Physicians and Surgeons, and began to practise medicine in the city. He still continued his connection with Dr. Hosack, and for a number of years examined all the latter's students. He was one of the early presidents of the New York Academy of Medicine. He was the founder and first President of the Physician's Aid Society, and was prominently identified in an official capacity with the College of Physicians and Surgeons. He was also the consulting physician of the St. Nicholas Society, and was prominently identified with all the old Dutch interests in the city of New York.

Influence of Magnetism on Chemical Reaction.—Mr. E. L. Nichols, in the *Journal of the Chemical Society*, describes a set of experiments with aqua regia, nitric acid, hydrochloric acid, and sulphuric acid, to illustrate the phenomenon that when finely divided iron is placed in a magnetic field of considerable intensity, and exposed to the action of the acid, the chemical reaction differs in several respects from that which occurs under ordinary circumstances. With aqua regia, it was found that the speed of the reaction is greater in the magnetic field than without, and that the heat of chemical union is much greater. With nitric acid, the effect of the magnet was greatly to increase the speed, reducing the average time from eight minutes to less than one minute. With sulphuric acid, the reaction was uniform and complete, and apparently of the same chemical character within and without the field. The magnet was found, however, to increase the speed of reaction, and to decrease the amount of heat produced. A series of measurements was made with nitric acid, in which powdered copper was substituted for iron. The reaction in the field was found to be identical with that which occurred when the magnet was not in action.

Suicidal Mania from High Temperatures.—A case of attempted suicide from acute mania, recently treated in one of the New York hospitals, has served to call renewed attention to the hardships of the life of stokers aboard ocean steamships. A rather intelligent English circus performer, finding himself getting too corpulent for the requirements of his calling and believing that much hard exercise in a very high temperature would rid him of flesh, decided to make the ocean passage as a fireman in a steamship, and obtained the opportunity he desired. The fire-room on a steamer is away below the water line, where ventilation is impossible, or at least not attempted. The temperature ranges from 135° to 175°, and in that atmosphere the men are required to shovel coal eight hours in every day—two stretches of unceasing and heavy work of four hours each in the twenty-four. The man in question was advised that he could not stand the exhaustive labor, but he was not to be dissuaded. Several times he fell fainting on the hot floor of the fire-room, but always insisted on resuming his duty. When within a day of port, in a fit of mania, he rushed from the heat, climbed to the deck, and leaped over the rail into the sea. Sailors rescued him, but he had to be kept manacled during the remainder of the trip.

Dr. George T. Stevens, of New York, has received the prize of the Royal Academy of Medicine of Belgium, for the best essay on "Elucidating the Pathogeny and Therapeutics of the Diseases of the Nervous Centres by Clinical Facts and Experiments." Of all the essays submitted, only his will be published by the Academy.

Dr. Ireland's book, *The Blot upon the Brain*, is to be translated into German. The French translation of this work, which is being prepared by Dr. Edgar Bérillon, of Paris, is nearly finished, and will be published in November. The "Blot" has been prohibited by the ever-vigilant Russian censorship. This is no doubt owing to the chapter on the hereditary insanity of the Romanoffs, and the historical illustrations about the miseries which insane monarchs have caused to their subjects.

Association of the Surgeons of the Pennsylvania Company.—The eighth semi-annual meeting of this Association will be held at the Seventh Avenue Hotel, Pittsburg, Pa., Tuesday, October 19, 1886, commencing at 9 A. M., Eastern time. A number of papers on appropriate subjects are promised.

Paul Revere as a Dentist.—In the *Boston Gazette*, December 19, 1768, appears the following curious advertisement:

Whereas many Perfons are so unfortunate as to lofe their Fore-Teeth by Accident, and otherways, to their great Detriment, not only in looks, but speaking both in Public and Private: This is to inform all fuch, that they may have them replaced with artificial Ones that look as well as the Natural, & anfwers the End of Speaking to all Intents, by PAUL REVERE, Goldsmith, near the Head of Dr. Clarke's Wharf, Bofton.

*** All Persons who have had falfe Teeth fixt by Mr. John Baker, Surgeon-Dentift, and they have got loofe (as they will in Time), may have them fastened by the above, who learnt the method of fixing them from Mr. Baker.

Unusual Cause of Death.—The French public was recently agitated by the discovery of the dead body of a genteel girl in a sequestered street in the suburbs of Paris. There were no marks of violence, but no doubt was entertained, either by the police or the public, that the death was due to crime. For some days the journals were full of wild theories as to the motives which might have prompted the murder. The real circumstances of the case, as now ascertained, are a trifle less romantic, but are sufficiently curious, from several points of view, to merit a passing remark.

At the post-mortem examination, which was made in the usual course of events at the Morgue, it was discovered that death was due to suffocation caused by impaction in the larynx of a collection of the *Ascaris lumbricoides*, which the child had presumably vomited, but not ejected. Not the least remarkable feature in the case is the explanation offered by the parents of their conduct in the matter. Terrified by the sudden death of the child, which nothing had foretold or could explain, they had preferred depositing the body in an unfrequented spot, to risking the malicious remarks and inuendoes of the neighbors and that dread official, the *concierge*. Rather than face this, and a possible trial for manslaughter, they, in a fit of desperation, resorted to the reprehensible plan which excited so lively an interest in French society. The cause of death is one which deserves to be recorded in the annals of legal medicine.

Appointment in Cooper Medical College.—Samuel O. S. Potter, A.M., M.D., has been called to fill the Chair of Theory and Practice of Medicine, in Cooper Medical College, made vacant by the death of Professor Henry Gibbons, Sen.

Beaumont Hospital Medical College.—Under this name a new medical school has been organized in St. Louis.

Free Dispensaries are said to be almost unknown in France, there being only three in Paris. What a paradise for young doctors such a country must be, says the *Maryland Medical Journal*.

Heat Holidays.—A very beneficent action is now required by law in Germany and Switzerland by which holidays are obligatory in all public and private schools when the temperature reaches a certain height. These heat holidays are called "hitzferien," and are worthy of adoption in other schools. In Basle new regulations have just been issued concerning heat holidays. When the temperature rises twenty degrees (Reaumur) in the shade at 10 o'clock in the morning, holiday is to be proclaimed to the scholars until the afternoon. Two such holidays were proclaimed during a recent hot week, to the no small delight of the boys and girls, whose jubilant greeting of the announcement could be heard from the open windows of the gymnasium.

American Pharmaceutical Association.—At the last meeting of this Association the following resolution was adopted.

Resolved, That this Association solicit the aid and coöperation of the American Medical Association, in promoting the prescribing by physicians of officinal medicines only, or such preparations as have published formulas, in preference to others; and that the several State Pharmaceutical Associations make similar requests of their respective State Associations.

Death from Use of Collodion in Smallpox.—A death is reported in France from the application of collodion to the face of a woman suffering from smallpox. The design of the application was to prevent pitting. Suppuration took place under the mask of collodion, and the patient died after great suffering. As the smallpox was discrete and uncomplicated and the autopsy showed no visceral lesions, the fatal termination would seem to have been due to the injury resulting from the collodion.

An Undesirable Experiment.—A recent incident in the Michigan College of Medicine has been a source of much anxiety to more than one of the parties concerned. One of the professors of clinical medicine was giving his final lecture to the class on the subject of venesection. No patient being at hand upon whom the operation could be performed, the lecturer asked for a volunteer. One of the students responded, and was bled. The demonstration was successful; but subsequently inflammation of the wound supervened, followed by abscess, erysipelas, etc., and caused the gravest anxiety to the student, his parents and fellows, and to the operator himself. Fortunately, the patient is convalescent. The incident is one which may well be borne in mind by would-be observers. We are already familiar with experiments on the human subject, which, whatever their value as arguments, have led to more or less serious consequences. The experimenters were in many cases students, and were, therefore, probably undeterred by consideration for their wives and families; but certainly some caution is desirable, since a fatal result would, in all probability, result in a verdict of manslaughter against the victim's accomplices.

A Brutal Physician.—A French journal states that a physician was called in the night to see a woman in childbirth. The labor was complicated, and an operation was necessary, for the performance of which the physician demanded 250 francs in advance. The husband was a laboring man, and had but 100 francs, which

he offered, with promises to pay the balance. The doctor refused in spite of the man's entreaties. Before another physician could be obtained, the woman died in great agony, two lives having thus probably been sacrificed for the paltry sum of thirty dollars.

SIR THOMAS WATSON AND SIR JAMES PAGET.—At the recent banquet of the British Medical Benevolent Fund, Dr. Broadbent, in proposing the health of the Chairman, Sir James Paget, applied to him the words Sir James himself had used of Sir Thomas Watson: "His knowledge was so vast, his goodness so great, and his example so elevating, that we all wished he might spend part of his immortality on earth."

HOPELESS.—Sir Astley Cooper relates the following anecdote of an Irish candidate before the Examining Board of the London College: "What is a simple and what is a compound fracture?" asked the examiner. The reply was: "A simple fracture is when a bone is broke, and a compound fracture when it's all broke." Sir Astley asked him what he meant by "all broke." "I mean," he replied, "broke into smithereens, to be sure." I ventured to ask him what was "smithereens." He turned upon me with an intense expression of sympathy upon his countenance. "You don't know what is smithereens? Then I give you up."—SIR CHARLES A. CAMERON, in *Dublin Journal of Medical Science.*

AMERICAN PUBLIC HEALTH ASSOCIATION.—The concluding session of the American Public Health Association was held on October 8th. The first business, after routine, was the election of officers, which resulted as follows:

President.—Dr. Geo. M. Sternberg, Surgeon U. S. A.

Vice-Presidents.—Prof. Charles N. Hewitt, Secretary State Board of Health, Minnesota; Prof. C. A. Lindsley, Yale College, Connecticut.

Secretary.—Dr. Irving A. Watson, of Concord, N. H., reëlected.

Treasurer.—Dr. J. Berrien Lindsley, of Nashville, Tenn., reëlected.

The Executive Committee is composed of the above officers, Dr. Henry B. Baker, of Lansing, Mich.; Prof. Hosmer A. Johnson, of Chicago, Ill.; Dr. Joseph H. Holt, of New Orleans, La.; Prof. George H. Rohé, of Baltimore, Md.; Col. D. P. Hadden, of Memphis, Tenn.; and the following Vice-Presidents: Dr. H. P. Walcott, of Cambridge, Mass.; Dr. Stephen Smith, of New York City; Dr. Jos. M. Turner, of Washington, D. C.; Dr. Edwin M. Snow, of Providence, R. I.; Dr. John H. Rauch, of Springfield, Ill.; Prof. James L. Cabell, University of Virginia, Va.; Dr. John S. Billings, U. S. A.; Prof. Robt. C. Kedzie, of Lansing, Mich.; Dr. Ezra M. Hunt, of Trenton, N. J.; Dr. Albert L. Gihon, U. S. N.; Dr. James E. Reeves, of Wheeling, W. Va.

Memphis, Tenn., was the place selected for holding the convention of 1887, and the Association adjourned.

AN AFRICAN MEDICAL JOURNAL.—A four-page weekly paper, the *South African Medical Journal*, is published at Cathcart, Cape Colony. Each number opens with an excellent editorial article, followed by a short instalment of a communicated article ("Cases Illustrating the Utility of Iron Salts in Syphilis," by W. Darley-Hartley, M.R.C.S., L.R.C.P., L.M.), and closes with a number of pithy annotations. Mr. Darley-Hartley, the contributor alluded to, seems to be also the editor and proprietor of the journal. Such good work as he is doing in his triple capacity certainly deserves support and coöperation.

NOTES AND QUERIES.

CORRIGENDUM.

To the Editor of THE MEDICAL NEWS.

SIR: In my article on the "Subiodide of Bismuth" (Oct. 9th), the lines, "They simply oxidize the deoxidized pus," etc., should have been omitted, as they were context to matter not printed, and had no reference to iodine or to bismuth.

Respectfully,

A. SIDNEY REYNOLDS.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING OCTOBER 9, 1886.

SUDDARDS, JAMES, *Medical Director U. S. N.*—Will convene Medical Board, October 6, 1886.

BROWNE, J. MILLS, *Medical Director U. S. N.*—Ordered to report to President Medical Board, October 6, 1886.

DEAN, R. C., *Medical Director U. S. N.*—Ordered to report to President Medical Board, October 6, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 5 TO OCTOBER 11, 1886.

MATTHEWS, WASHINGTON, *Captain and Assistant Surgeon.*—Granted leave of absence for one month and twelve days, with permission to go beyond sea.—*S. O. 232, A. G. O.*, October 6, 1886.

FISHER, W. W. R., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended one month.—*S. O. 230, A. G. O.*, October 4, 1886.

BORDEN, WM. C., *First Lieutenant and Assistant Surgeon.*—Relieved from temporary duty at Fort Bridger, Wyoming, and ordered to return to his station, Fort Douglas, Utah.—*S. O. 126, Department of the Platte*, October 2, 1886.

HAMMOND, JOHN, F., *Colonel U. S. Army* (retired).—Died at Poughkeepsie, N. Y., September 29, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING OCTOBER 9, 1886.

PECKHAM, C. T., *Passed Assistant Surgeon.*—Granted leave of absence for thirty days, to take effect when relieved, October 5, 1886.

KALLOCK, P. C., *Passed Assistant Surgeon.*—Granted leave of absence for twenty-one days, to take effect when relieved, October 5, 1886.

PETTUS, W. J., *Assistant Surgeon.*—To proceed to Evansville, Indiana, for temporary duty, October 8, 1886.

KINYOUN, J. J., *Assistant Surgeon.*—Appointed an Assistant Surgeon, October 4, 1886. Assigned to temporary duty at New York, N. Y., October 5, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

SOME CONSIDERATIONS ON THE CLASSIFICATION, PROGNOSIS, AND TREATMENT OF CERTAIN RENAL DISEASES.[1]

BY THOMAS E. SATTERTHWAITE, M.D.,
PROFESSOR OF PATHOLOGY AND GENERAL MEDICINE IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

IN accordance with a happy fashion of the day, that is leading medical men to centralize their attention upon certain of the more important topics in medical practice, I have ventured to contribute my views on some matters relating to renal disease. And I start out with the proposition that physicians will always find it of practical advantage to discover the exact pathological conditions that are associated in any case with renal manifestations; and especially whether they are referable to a primary disorder of the kidneys, or to some systemic dyscrasia.

But I do not urge this discrimination because I believe that a differential diagnosis will always favorably affect our treatment, but rather because I am firmly of the opinion that otherwise the natural course of the disease would be misunderstood, and the prognosis consequently a matter of guesswork.

The present paper is mainly founded upon my personal study of Bright's disease in ninety-six cases selected from a much larger number from my hospital and private records, those only being utilized which had the requisite fulness, in the matters of clinical history and post-mortem findings, to justify me in retaining them for the purposes of study. Though I may err in the interpretation of my data, and I am willing to admit that a larger number of observations may at any rate alter the ratios which I give, I still feel bound to state that, numerically, I believe my cases are entitled to an equal credibility with any similar number of cases observed by trained and educated men under unusual advantages for taking and registering their observations; and I, therefore, hold that the data are adapted to form a basis for clinical study, and hence, for practical inference.

Starting from the standpoint of pathological anatomy, I shall first adopt a classification that recognizes certain known morbid states of the kidney, though upon the matter of nomenclature I may be at variance with some of our pathologists. But each variety of renal disorder that I shall name will represent, with more or less distinctness, a type of Bright's disease, and by that term I refer to a group of clinical symptoms in which we note special urinary phenomena, such as the presence of peculiar cylindrical-bodies (casts), albumen, often an altered volume, sometimes a notable deviation in the specific gravity from a given standard, together with certain gastro-intestinal, nervous or cardio-vascular phenomena that have been taken to characterize a series of closely allied conditions passing under the popular name of "Bright's disease." We shall presently take up these several varieties, and see wherein they are allied, and on what points they differ.

In giving my classification, I may remark that it is broader than one which is purely clinical. But, as the present state of pathological knowledge is far in advance of the clinical, and as the several varieties that I give are matters of easy demonstration, it is natural that pathologists should hold to their data, even if clinicians cannot match them in giving bedside criteria for each pathological change.

Classification on a Pathological Basis.

1. Passive congestion of the kidney.
2. Acute diffuse nephritis.
3. Chronic diffuse nephritis.
   Recognized sub-varieties:
   a. The large kidney.
   b. The kidney of small or medium size.
   c. The small or "little gray kidney."
4. Acute parenchymatous metamorphosis.
5. Chronic parenchymatous metamorphosis.
   Recognized sub-varieties:
   a. The large white kidney.
   b. The medium or small kidney.
6. The sclerotic kidney.
7. The waxy kidney.
8. The gouty kidney.

Adopting, then, for the time being, this classification, and studying the clinical symptoms of each on this basis, I venture the following statements:

1. In any case of ordinary venous congestion of the kidneys, whether from a surgical accident, such as a fracture of the spine, or from a systemic disease, such as purpura hemorrhagica, or local affections, such as hydropericardium, pleurisy with effusion, etc., where the kidneys are found the seat of temporary venous congestion, death is apt to occur by coma, or from pulmonary œdema, with such gastric phenomena as nausea and vomiting. The specific gravity will not, necessarily, be abnormal, but there will usually be albumen, sometimes granular, or even blood casts (these latter we may expect); and the quantity of urine will vary from six ounces per day to the normal. Sometimes, or generally, an infarction of the kidneys, such as may occur during the course of an endocarditis (and it occurs at some time or other in about one-third of them), will not be recognizable by any other than these symptoms, unless we have to do with the suppurative or infective variety of endocarditis in its later stages. And, since the infarct is due to a primary embolus, with secondary and collateral venous stasis, it follows that, at first, certainly, there is localized venous engorgement, and, consequently, such a train of symptoms as it

[1] A portion of this paper was read at a meeting of the Clinical Society of the New York Post-Graduate School, Dec. 5, 1885.

produces; of course, in conjunction with more or less increased vascular tension in the unplugged arterial vessels.

Thus in the case of a patient who died recently at the Post-Graduate Hospital, the urine was scanty, albumen and casts in abundance were present, and the autopsical findings led us to believe that the abnormal condition of the urine was due to a thrombosis of the kidney, secondary to renal embolism, following ulcerative endocarditis of the mitral valve. The patient died in coma, apparently of uræmic origin. And it appears to be a matter of common acceptance that when pressure had been brought to bear upon any of the renal veins (outside of the organ), from any cause, we may find albumen, casts, and a diminished volume of water; all of which facts are perfectly compatible with the laws of urinary pathology. Such symptoms occurred in all cases of venous congestion that have come under my notice.

2. Acute diffuse nephritis appears to be rare, at least as a cause of death. Its frequency in my cases is represented by a percentage of two, and the causes were "catching cold in the loins" and operation for a urethral stricture. Both patients died in uræmic coma, while nausea, vomiting, with frequent attempts at micturition, and œdema of the extremities, were symptoms observed. The sp. gr. of the urine varied from 1.027 to 1.028; albumen was found when looked for; but the urine was either scanty or suppressed. In one of these cases it was observed that the affection was unilateral, and this point leads up to the statement that it is by no means uncommon to find that one organ is far in advance of the other in the degree of its morbid change; and hence comes the natural conclusion, that while one organ is furnishing, through the urine, many of the symptoms from which an unfavorable prognosis may be made—as, for example, an abundance of albumen and casts in variety—the other organ may be doing over-work, and in fact supplying the place of its fellow. This condition is most frequently noticed in the advanced stages of chronic diffuse nephritis.

3. In introducing the topic of chronic diffuse nephritis I find that it constitutes one of the most common forms of nephritic disease, forming about forty per cent. of all the cases commonly classed under the term Bright's, whether acute or chronic. It probably exists under three forms, or to speak more accurately, I find it convenient to distinguish three forms, the distinction being based upon the size of the organ. In the first, the weight and measurements are increased, partly by the swelling of the epithelial elements, and partly by an infiltration of the fibrous tissue. As this fibrous deposit shrinks, the epithelial elements are also necessarily contracted; so that when the process has continued for a time, the kidney has returned to about its normal size, but manifests in a variety of ways the fact that contraction has taken place; later the shrinkage reaches such a point that the organ is permanently diseased in all its parts, and the unhappy bearer stands constantly on the edge of a precipice.

In the large form (3 *a*) I have found as an antecedent condition either inflammatory rheumatism, endocarditis, or phthisis, the latter in about one-half of the cases. Of the usual symptoms, there are apt to be headache, dizziness, vomiting, ascites, or anasarca; the specific gravity of the urine varies from 1.014 to 1.026, while the average is about 1.020. Albumen is present in large amount. The casts are hyaline and granular, large or small. The urine is usually scanty, rarely reaching forty ounces per diem. Death occurs from coma, syncope, or exhaustion. In the medium-sized kidney of chronic diffuse nephritis (3 *b*), rheumatism, endocarditis, or pericarditis preceded the disease in seventy-five per cent. Patients with this kidney have nausea and vomiting; headache, dizziness, dyspnœa, frequent desire to micturate, and swelling of the extremities or general anasarca. The specific gravity will vary from 1.009 to 1.030, with an average of 1.018. Albumen will be present (in quantity from a trace to seventy-five per cent.); there will be granular and hyaline casts; the urine is usually scanty; and death takes place from exhaustion, coma, heart failure, or œdema of the lungs.

In the small variety of chronic diffuse nephritis, the "little gray kidney" (3 *c*), rheumatism of the inflammatory variety was an antecedent condition in sixty per cent.; phthisis in thirty per cent.; carcinoma in twenty per cent.; scarlatina in one per cent., though these precursors were so intermingled with one another as prior conditions, that it was impossible to determine their relative importance as causative factors. Among the symptoms noted were frequent micturition, headache, dizziness, attacks of palpitation, faintness and diarrhœa alternating with constipation. Among the urinary symptoms noted were a comparatively low specific gravity, averaging (in seventy-five per cent. of the cases) below 1.014; frequent absence of albumen and casts, the former exceptionally reaching fifteen per cent. by volume. Death takes place in the customary way, either with profound coma, or by sudden cardiac or respiratory failure.

In gross appearance, this form of kidney is very like the sclerotic kidney (arterio-capillary fibrosis of Gull and Sutton), but it is different in many ways, as we shall see at another place. In the little gray kidney, we note a very regular antecedent condition of systemic disease; among the symptoms more or less œdema of the extremities or anasarca are common occurrences; there is also a moderate but fair amount of albumen in the water, which is apt to be scanty. In the sclerotic form the antecedent conditions are obscure; there is little tendency to dropsy; more or less polyuria; slight albuminuria; but a marked alteration of the vascular system.

Let us now review these three sub-varieties of chronic diffuse nephritis, and observe whether they do or do not bear any intimate relations to one another. First, we revert to former statements that they may, in accordance with the known laws of pathology, bear the relation to one another that has already been drawn; the large, medium, and small kidney, representing the successive stages of one affection. But apart from these considerations let us pass to the clinical symptoms of each.

First of all, we note one constant prior condition

that is not present with any degree of regularity in any other form of renal disease. I refer to acute articular rheumatism, endocarditis, or pericarditis. The other clinical phenomena are best studied by reference to the following table.

especially as in those cases where the skin, lung, liver, and intestines, are unable to do their part. Occasionally the disease appears to be idiopathic, but there can be little question that it is rarely so. We have simply failed to discover the primary cause.

Table I.

Chronic diffuse nephritis.	Gastric symptoms.	Nervous symptoms.	Specific gravity.	Albumen.	Casts.	Amount of urine.	Mode of death.
Kidney of large form,	Present.	Present	1.014–1.026 av. 1.020	None to over 50 per cent.	Hyaline and granular.	Usually scanty.	Usual way.
" " medium size,	Present.	Present.	1.009–1.030 av. 1 018	Trace to about 30 per cent.	Hyaline and granular.	Usually scanty.	Usual way.
" " small size,	Present	Present.	1.010–1028 av. 1.013	Small amount; trace to 10 per ct.	Usually absent.	Scanty or in excess.	Usual way.

It is plain, in the first place, that the symptoms yielded by the large and medium-sized kidney offer small opportunity for a differential diagnosis, the only points of manifest difference being in the quantity of albumen, which in the large variety is abundant, and in the medium kidney of less amount, and in the small of still less, but even on this point there is considerable range; for though in the large kidney, if present, it may average fifty per cent. by volume, it may be absent; in the medium, although, if present, it may average about thirty per cent., it may be reduced to a trace; in the small kidney, if present, it will not average over ten per cent., but may be absent; but such averages are only applicable to a large number of cases taken together where the amount has been estimated a number of times, and then averaged. So of the specific gravity, a single examination in any case would yield little that was valuable, owing to the variations in the specific gravity from day to day through the operation of natural causes. If, on the other hand, we examine the specific gravity of our cases combined, we find that while in the large it is more commonly about 1.020, though averaging from 1.014 to 1.026; in the medium kidney it averages 1.018 with a range of from 1.009 to 1.030; and in the small it is 1.013 with a range from 1.010 to 1.028. And these differences are such as would naturally ensue under the conditions given, the albumen and specific gravity falling contemporaneously and in pretty uniform ratio. In other respects there is no difference in the symptoms more than that as the kidney becomes quite small, the amount of water is apt to increase and casts will usually be absent, two points that apparently need no explanation. From a combined study, therefore, of anatomical, pathological, or clinical facts, our evidence appears to favor the view that these several forms of chronic diffuse nephritis are merely separate stages in one type of the disease.

4. I next take up the subject of acute parenchymatous nephritis. A diagnosis of this variety from a clinical point of view should usually present no difficulties. It is chiefly secondary to scarlatina, diphtheria, measles, pneumonia, typhoid, and typhus, or any condition of the system whereby the kidneys are suddenly called upon to throw off the effete products of the body in an unusually active manner,

In a most marked degree we see acute parenchymatous nephritis in scarlatina, as in the following case, where I made the post-mortem examination at St. Luke's Hospital.

D. S., an American boy, sixteen years old, came to my class at the Demilt Dispensary in 1878. He was then suffering from necrosis of the femur. On April 22d he entered St. Luke's Hospital for surgical treatment. On the 25th he had a slight chill, and within twenty-four hours developed scarlatina. On the night of the 27th his temperature rose to 104°, and pulse to 146. He died in coma, after suppression of the urine had lasted twelve hours.

At post-mortem examination the kidneys were found intensely anæmic; microscopic examination showed that the epithelium throughout the organs was intensely granular, while the Malpighian bodies were infiltrated with leucocytes, the latter condition described by Klebs under the name of glomerulonephritis. Probably the pressure thus brought to bear upon the capillary tufts prevented the excretion of water, and brought on the fatal symptoms.

In a most marked form we notice acute parenchymatous nephritis in pneumonia, whether lobar or lobular, but most distinctively in the former, though it is not uniformly present, probably because some other apparatus of the body has succeeded in relieving the kidneys of the special strain. This complication is of great importance and I have met with several marked instances where the secondary disorder presented a greater menace to life than the primary. Thus in the case of a medical practitioner from Connecticut, who was attending the Post-Graduate School in the winter of 1882, a cold taken in the train by which he came to New York, led to a lobar pneumonia, which was nearly fatal through the renal complications. Coma developing during the first days of the attack, drew the attention of the attending physicians and myself to the probable cause, and inquiry led to the discovery of scanty urine, which was found to contain albumen in large amount, with granular and blood casts. In this case vigorous local treatment and the free use of diffusible stimulants, of which the carbonate and muriate of ammonium proved the most efficient, restored the functional activity of the kidneys, and in due time convalescence was established.

I may say, parenthetically, that in such instances,

especially if the kidneys have been previously damaged, I am chary about using alcoholic stimulants, from fear of the irritation of the renal organs that they sometimes produce, and I rely very largely upon active fomentation, blisters, and revulsives. It is a fortunate circumstance that in such cases external applications can easily be made to act favorably upon both lung and kidney simultaneously.

In acute parenchymatous nephritis the specific gravity is usually within the normal range; thus it will commonly be found between 1.020 and 1.030; in most cases I have found it between 1.020 and 1.022; albumen in large quantity will be a marked feature, often very abundant; and we may confidently look for blood casts, granular casts, and granular matter. There will also generally be decided gastric and nervous phenomena, and death will take place under some one of the many forms that are induced by depression of the nerve centres from the poisoned blood.

But in the majority of instances we have good reason to believe that if the primary disease resolves, the secondary or renal will follow suit. The swollen and granular epithelia will assume their normal characters, and perhaps even the corpuscular infiltrations of the Malpighian bodies may disappear. At any rate, our clinical data lead us to hold that acute nephritis, under the conditions named, will not become chronic in a great number of cases; and we have reason to say, therefore, that the patient has entirely recovered from an attack of acute Bright's disease.[1]

5. Chronic parenchymatous metamorphosis or inflammation, as an uncomplicated affection, is recognized best under two morphological varieties, that of the "large white kidney," and of the medium-sized kidney. This former condition is seen more frequently at post-mortem examinations than any other renal change that can be classed under the general term of Bright's disease. It constitutes about one-third of this class, and for the simple reason that it owes its existence usually to phthisis, which is the most prevalent disease we have to deal with. In fact, where there is the large white kidney we may expect to find pulmonary phthisis in eighty per cent. of the cases. But though to the naked eye the implication of the kidney appears to suggest that we should have very positive renal symptoms, the truth is, *they are rare.* Nausea and vomiting seldom occur. Serous effusions are not very common, and often a slight dropsy may be attributed to the watery condition of the blood, due to the wasting disease. Nor will the specific gravity of the urine give much assistance in the diagnosis. I have found it to vary from 1.010 to 1.028, with a general average of about 1.020; albumen may be abundant or absent; usually casts are entirely absent, though we may occasionally or in some cases find the hyaline or granular variety. There is generally observed a diminution in the amount of water. In fact, the renal complication is fatal, so far as my cases show, in only one case out of five.

5 *b.* The second form of this kidney disease is the precursor of the large white kidney, and may be found after any suppurating or wasting disease has been in existence a few months; when the disease has existed for a year or more, we usually have a kidney of the "large white type." The more advanced the disease, and especially the more extensive the suppuration, the larger the kidney, and the more pronounced the pathological changes.

In the smaller variety severe effusions are comparatively rare; nervous symptoms even less so; the specific gravity varies from 1.012 to 1.024, though 1.016 is not infrequent. Albumen is rarely present in large quantity, usually is absent or represented by a trace. Casts are rarely found. Water is apt to be scanty, as in the "large" variety. Table II. shows the points that offer for a differential diagnosis:

Table II.

Chronic parenchymatous metamorphosis of kidney.	Name and duration of causative disease.	Gastric symptoms.	Nervous symptoms.	Amount of water.	Specific gravity.	Albumen.	Casts.	Cardio-vascular symptoms.
Medium sized kidney,	Phthisis, 80 per ct. 1–3 months,	Rare.	Very rare.	Apt to be scanty.	1.012–1.024 av. 1.016	Commonly absent.	Rare.	Œdema very rare.
Large white kidney,	Phthisis, 80 per ct. 1 yr. or upward.	Rare.	Very rare.	Apt to be scanty.	1.010–1.028 av. 1.020	Abundant or absent.	Generally absent, or hyaline or granular.	Rare.

From a study of it we readily see that a differential diagnosis must be based purely on the fact that in something over three-fourths of all cases of phthisis, where the duration has not exceeded three months, the smaller form of chronic parenchymatous nephritis will be the rule, whereas in something over three-fourths of all the cases of phthisis where the disease has lasted one year or more, the "large white" may be predicated to exist, and especially if the lung disease has been rapidly destructive in its course. But there is some good reason to believe that the changes in the epithelium in these cases are not altogether pathological; at first (we may judge from the analogy of the acute form) the swollen and granular epithelium owes its condition to the proper task it has undertaken to separate from the body an undue amount of unassimilable or effete material that is disturbing the proper equilibrium of the body. It is only after this excrementitious matter has tarried so long in the kidney that the cells become overcharged and poisoned by matters that they would have discharged successfully had they only been burdened with less work. In cases where large masses

[1] I have used the term "parenchymatous nephritis," as the name has met with general acceptance. The term "parenchymatous metamorphosis" I believe to be better, in the present state of our knowledge, there being grounds for believing that parenchymatous changes are not strictly inflammatory.

of fatty and granular débris are thrown off from these organs, it is evident that they have suffered material damage, and we have little reason to suppose that there is any restitution of equivalent tissue.

6. In the so-called little red, granular, contracted, or cirrhotic kidney, which I prefer to call the sclerotic (*skleros*, hard), there appears to be no doubt that we have a disease which has distinctive pathological and clinical features from any of the forms of Bright's disease I have already mentioned. There is a noteworthy thickening of the small renal vessels that is prominent in our minds, since Gull and Sutton, in 1872, called the attention of the profession to the anatomical findings. But it seems probable from the conjoined labors of many pathologists that this "arterio-capillary" fibrosis is a general disease of the vessels, and that all portions of the body may be similarly attacked. The antecedent cause seems to be obscure, but whatever it may be, the blood becomes poisoned and then awakens in the system a condition of arterial tension that later induces thickening of the vascular coats and hypertrophy of the left side of the heart. And these theories are in full accordance with physiological experiments.

Of seven cases in which I have pretty full clinical and post-mortem notes, I find the following antecedent affections: Malarial fever, one; pneumonia, one; typhoid fever, one; progressive muscular atrophy, one; cold caught two years previously, one; syphilis and rheumatism, one; gout, one; and yet we have no reason to say from the above findings that the blood was sufficiently poisoned to produce the disease. There still remains for us to discover the real cause.

And now for the symptoms. Of these, those referable to the gastro-intestinal tract and cerebro-spinal or sympathetic system are mainly the same as are seen in chronic diffuse nephritis. But the specific gravity of the urine is almost always low, ranging from 1.008 to 1.012, with 1.010 as a prominent figure. If albumen is present in any appreciable quantity it is slight. A larger amount never occurs until suppression is setting in. The water will be copious when the disease is at its height, and will diminish, other things being equal, only when dangerous symptoms are at hand. Death may occur from apoplexy, cerebral or meningeal, sometimes from sudden heart or respiratory failure when the patient is apparently in excellent health. Occasionally the final result will be delayed by convulsions, coma; and œdema of the lungs will appear to be the final trouble that closes the drama.

In this form of renal disease casts are infrequent and may be absent for long periods; when present, those of the hyaline variety are most common. Dropsy may be altogether absent. The polyuria, persistent low specific gravity of the water, with slight albuminuria, an occasional cast, but pulse of high arterial tension, and constant headache will direct the physician to the proper diagnosis. This is the cause of death most often in the so-called "heart disease" of the laity. Often both physician and friends may be totally unprepared for the final event, though an occasional examination of the urine would have prepared them for it.

7. The "gouty" kidney. This form of renal disease that has been regarded as so destructive, is in reality nothing but the kidney of chronic diffuse nephritis, in which crystals of sodium urate have lodged. Sometimes the crystals will be found in only one kidney.

8. There is also a waxy kidney, where the walls of arteries and arterioles are infiltrated with waxy or amyloid material. Whatever this material may be, and from whatever source it may be derived, there is no doubt that the change is a consequence of some chronic suppurative process in the body or of a wasting disease, such as syphilis.

Where there is any considerable deposit of waxy matter in the vessels the urine is found to have a low specific gravity, as from 1.006 to 1.010, and the amount of water will be large; albumen will be present in varying amount. Casts will often be absent and the hyaline variety will predominate. The diagnosis is based upon a study of these facts.

It is proper at this point to allude to a form of renal affection that is associated with the pregnant condition. Of this I am not prepared to speak from personal experience. But I am free to say that (contrary to some teachings of comparatively recent date) the presence of albumen and casts in the urine, with scanty excretion, and more or less dropsy, form no necessary bar to the proper performance of natural labor on the woman's part, and that the physician should exercise a wise discretion in countenancing artificial delivery under such circumstances; the facts being that in a large number, perhaps the majority of instances, a condition of more or less pronounced nephritic disorder may prevail during the latter months of pregnancy, and yet the delivery may take place in a natural manner, and at the proper time, with safety both to mother and child.

Having thus reviewed the several varieties of Bright's disease, with reference to morphological changes and symptomatology, we are now confronted with the prognosis in each of them.

First, with reference to nervous congestion due to interference with either venous or arterial circulation, I may repeat that the albumen, casts, and scanty urine will disappear on removal of the cause, if this be possible, as in the case of an enlarged spleen, an ovarian tumor, or renal infarct.

In acute diffuse nephritis, where the cause may have been a blow, exposure to cold, or operation upon some portion of the genito-urinary tract, or extensive burns, etc., local, combined with general treatment will often carry the patient through, and there will be no subacute or chronic condition following. Of course, the disease is a dangerous one.

In chronic diffuse nephritis, the duration of renal symptoms is apt to be long, months or even years, depending in many cases upon the gravity of the antecedent or associated general dyscrasia, such as chronic articular rheumatism or gout, and especially on the activity of its manifestations and its behavior under treatment. But there is reason to suppose that if the systemic disease is held in check, the renal trouble will ameliorate correspondingly.

In acute parenchymatous nephritis we have a disease of greater or less intensity in particular cases. Recognizing as its cause some exanthem, continued fever, or intoxication by animal or mineral poisons, we should turn to the original disease in order to measure the secondary or renal. Yet this rule will not always be practicable. Usually, it may be said, if the prior disease is tractable we need not anticipate uræmic disorders.

In chronic parenchymatous change, when phthisis or some wasting disease is a forerunner, the prognosis is almost uniformly bad for a total disappearance of the symptoms; though it is the primary disease that most often kills.

In that obscure disease that I have called the sclerotic kidney, but which owes its danger mainly to vascular changes, we shall continue to be surprised by its peculiar phenomena, because we do not yet know their cause. There can hardly be any doubt that there is no improvement at any time or under any circumstances in the structural condition of the kidney, but always a gradual progression toward a fatal issue. But that the final event is delayed for years by appropriate treatment, I am firmly convinced.

In the waxy or amyloid kidney we have an affection that is to a great extent an index of other systemic changes. So long as the suppuration or chronic wasting process is going on, there can be no betterment in the diseased vessels. But judging from analogy it is reasonable to suppose that if the primary affection can be subdued so will the secondary. For we are led to believe from clinical experience that where we have a waxy liver, the result of chronic suppuration, the removal of the morbid focus, is at once associated with a decrease in the size of the organ. In both cases it is probable that the vessels only receive the waxy deposit.

In the matter of treatment, if we bear in mind the considerations that have been given, our therapeutic resources may be properly directed.

In cases of venous congestion due to pressure on renal veins it is plain that relief is to be sought in measures that will disembarrass the renal circulation, or, as perhaps in the case of infarction, stimulate the unaffected portions of the kidney to increased work until the uræmic symptoms have gone by.

And so in the acute diffuse variety, we have to recognize the condition and struggle with it as best we may, calling upon the skin, lungs, and intestinal tract to assist with all the power they have at command.

In acute parenchymatous nephritis, an active local treatment is most desirable, and resort may be had to dry cupping, rubefacients, and poultices, but we should also specially direct our measures toward running off the fluids by such tissues as are unaffected; thus in scarlet fever the bowels should be kept open; in pneumonia the skin should be freely exercised. At the same time those drugs that stimulate the renal secretions should be held in high favor.

I am fond of using the spiritus Mindereri in connection with the muriated tincture of iron and Hoffmann's anodyne, and have found this combination to act admirably. Sometimes Rochelle salts will answer as a brisk purgative; of course in some instances, especially in pronounced dropsy, we may have to resort to hydragogues, such as elaterium, in one-quarter grain doses. There is no doubt in my mind that the latter give relief, though I have seldom had occasion to use them. I have also used a well-known elixir purgans[1] with some advantage, in such cases.

In the chronic forms, whether of the parenchymatous or diffuse varieties, we have first to attack the predisposing disease, be it phthisis, the lithic diathesis, or any other dyscrasia, and then finally meet the results of the disease. If, for example, passive effusions are endangering life, either by producing pericardial effusions, and so cardiac embarrassment; or if pulmonary œdema or ascites is making respiration difficult, it may be best so to stimulate the kidneys that they will be induced to take a greater activity. This can be effected in various ways, by diuretics, of which I hold that the muriated tincture of iron holds the first place, or by the hydragogues already mentioned. I give the former in doses varying from fifteen to forty minims, three times a day; or I order large quantities of alkaline waters to be taken, such as Vichy or the alkaline Buffalo lithia water (No. 2). Sometimes Clysmic water, given in amounts averaging about three pints daily, with as much skim-milk, will answer excellently in chronic cases. It is notorious that the kidneys will usually respond. In cases of lithiasis, I find that salicylic acid,[2] given in ten grain doses, both meets the anti-lithic indications and also promotes the flow of water. It may be given advantageously in Poland water, or better still in Clysmic water, but these waters, to be beneficial, should, of course, be taken in some quantity. These chronic cases may be successfully treated for some years in the way I have indicated, though they are prone to acute exacerbations, in which it may be necessary to resort to digitalis infusion in drachm doses, perhaps to fomentations of this drug. After the attack has thus been controlled, the patient may return to the simpler remedies. In most acute attacks in chronic diffuse nephritis, or in the granular (sclerotic) kidney, irregular respiration or cardiac action may seriously threaten life. In such cases, I have been invariably successful in bridging over the early attacks by hypodermatics of brandy. In most instances it is useless to attempt medication by the stomach. The hypodermatics of brandy may then be followed by morphia, and the results have, in my hands, been always good.

Sometimes the most obstinate symptom is nausea or vomiting. It is a question, however, whether the physician should be too anxious to arrest it. It is probably induced by a temporary congestion of the gastric walls, which, for the time being, are subject to a vasomotor neurosis similar to that which attacks other parts under the influence of uræmic poisoning. The fluid is due in great part to exudation from the capillaries, and the stomach is eliminating the poison vicariously. In my experience, the nausea is best

[1] Eli Lilly & Co.

[2] I usually use Frye's granular effervescent salicylic acid.

controlled by such alteratives as hyd. c. creta, given one to three times daily in five grain doses.

In conclusion, it is seen that, so far as the prognosis is concerned, in many cases the manifestations of Bright's disease disappear not to return, certainly those connected with the exanthemas, pneumonia, and typhoid fever, while even in the most common forms of all, the purely parenchymatous metamorphoses—the renal disease plays a comparatively unimportant *rôle*—death being usually due to primary disease of the lungs.

In conclusion, it may be said that of the types of Bright's disease here given, the special form can usually be determined from a history of the case, together with the attendant clinical phenomena, particularly if the patient has been long enough under intelligent observation to determine the range of the urinary symptoms.

251 Madison Avenue.

THE USE OF BORACIC ACID WITH VAGINAL TAMPONS.

By HARRIS A. SLOCUM, M.D.,
of Philadelphia.

In the treatment of the various pelvic troubles where the use of tampons is indicated, one of the disadvantages has been the development of an extremely offensive odor, unpleasant to the physician and distressing to the patient, ordinarily occurring after a retention of the cotton for more than forty-eight hours. Occasions arise when it is inconvenient for the patient to return every two or three days, and it then becomes a matter of importance to adopt some means which will prevent the usual decomposition, and allow her to retain the tampon for a longer period.

To secure this end, a number of expedients have been tried, of which I shall mention but one, viz., the use of boracic acid. From the first trial it has served the desired purpose effectually, and has given decided and striking results. Cases having profuse and offensive leucorrhœa among the Russians, Poles, and negroes of the Philadelphia Dispensary service have been subjected to this treatment, with the unvarying result of entirely preventing the occurrence of the usual unpleasant odor. In several instances the menses have appeared while the tampons were *in situ*, and have, in each case, saturated the cotton, which, upon removal, was found as free from smell as when introduced.

Following is a short description of the mode of application: While using Sims's speculum in either the genupectoral or lateral position, the vagina is cleansed with a piece of wet absorbent cotton held in a pair of uterus forceps, partly withdrawing the speculum to allow of access to the posterior wall. The membrane is then partly dried with a fresh piece of cotton, and several scruples of boracic acid introduced on a spatula, and distributed over the area with a wisp of cotton, or by the aid of the forefinger. The slight moisture permits the powder to adhere, forming a moderately thick coating over the entire wall. In an ointment jar or other convenient receptacle, is placed about an ounce of the acid, and each piece of cotton, held in the forceps, is thoroughly rubbed in it before insertion.

Great care is always necessary in the introduction of tampons, even when they remain but twenty-four hours, to prevent undue pressure upon rectum or urethra. When they are to remain in position a week or longer, greater attention than ever must be paid to these points, on account of the tendency of the cotton to pack, through absorption of moisture and continuous pressure.

Comparing boracic acid with other agents, I have not found one which so completely fulfils its office, without offering objectionable features of its own. With very free or unpleasant discharges a proportionately larger amount of powder must be used.

Whether it affects the vaginal tissues advantageously or otherwise, I am not prepared, at present, to say, though I have frequently noticed after its use, and when that which remained from the old packing had been removed with a piece of wet cotton, that the vagina was much paler than when the tampon was introduced. If, by repeated trials, this observation can be proved correct and constant, it may reasonably form the basis for a series of experiments in the treatment of vaginitis. That the paleness just mentioned is not entirely due to the mere pressure of the cotton, seems evident from the fact that simple cotton tampons are frequently tinged with blood on their surface, although carefully placed and not tightly packed.

Oakum tampons seem particularly apt to irritate the membrane, and cause oozing after forty-eight hours' retention. So decided is this tendency to cause bleeding, that when a case presented where I wished to use oakum, it was not introduced until a layer of cotton had been placed against the vaginal wall, to protect it from the harsh and irritating fibres.

Cotton saturated with boroglyceride is an effectual antiseptic, but will not serve the purpose here. Glycerine produces a copious watery discharge, which, though at times beneficial, is not always desirable, and is ill adapted for long retention, inasmuch as it is diluted and partly removed by the watery discharge it causes.

Notes from a few of the cases treated are appended, in connection with which it should be stated that, before the boracic acid was used, it was a rare circumstance to allow the tampons to be retained longer than three or four days, and when this period was reached, the removal was an operation which anyone would prefer to avoid.

J. B., colored, retroversion with adhesions.

June 16. Tamponed vagina, using boracic acid.

24th. Removed tampon. Slight amount of mucus adhering at position of cervix. No odor. Renewed cotton packing with boracic acid.

July 2. Removed tampon. No odor. Introduced Smith pessary, No. 2.

9th. Removed pessary. Secretion free, but not abundant. Odor decided and characteristic. Washed vagina and renewed cotton, using the acid.

18th. Removed tampon. No odor. Vagina pale.

J. P., white. Patient lives sixty miles from the city, and can conveniently return but once a week. Enlarged, prolapsed, and tender right ovary.

July 2. Used cotton tampon with boracic acid.

12th. Removed tampon. Slight secretion. No smell whatever. Renewed cotton with acid.

19th. Cotton removed. No odor. Vagina pale.

M. H., retroversion with adhesions.

June 15. Tamponed, using boracic acid.

19th. Not the least odor upon the removal of tampon.

A. A., bilateral laceration of cervix, with hypertrophy. Profuse and offensive leucorrhœa.

July 2. Tampon, with boracic acid.

9th. Removed cotton, thoroughly saturated with muco-purulent discharge. Slight odor, not marked.

In this case an odor developed, but was very slight, and resulted from an insufficient amount of the powder being used. If the acid had not been employed, I have every reason to believe that the stench would have been nauseating.

S. U., retroversion.

June 25. Introduced tampon, using boracic acid.

29th. Menses appeared on morning of 26th, and showed at the vulva. Removed cotton, saturated with blood. No odor, not even the characteristic smell of blood.

L. C., September 6th, tampon of boracic acid.

Sept. 12. Removed tampon. No odor whatever.

These few cases will serve to indicate the usefulness of boracic acid in this direction, providing the application is thorough, care being taken to coat the vagina well before introduction, and to treat each piece of cotton thoroughly. The operation is generally completed in three minutes.

1208 Spruce Street.

A PECULIAR GROWTH OF THE OPTIC PAPILLA.

By CHARLES W. KOLLOCK, M.D.,
of Charleston, S. C.

This peculiar growth from the optic nerve was seen in the case of Mrs. M., who sought advice on account of dimness of vision in the right eye and floating bodies in the visual field. When first examined, on the 15th of April last, the vitreous was cloudy, contained floating bodies, and the outlines of the disk were indistinctly visible. No peculiarity of the disk was detected at the examination. Vision $\frac{5}{XV}$ (Oliver's card—or about $\frac{15}{L}$), which was rather surprising, when the cloudiness of the media was taken into consideration. No specific history could be elicited, though she admitted having always been healthy up to the time of her marriage, eight years ago. She had never borne children, and had for some time been under treatment for womb trouble. Iodide of potassium was prescribed in ten grain doses three times a day, to be gradually increased. Two days later a more careful examination was made than the first, when a small bubble-like protuberance was seen upon the disk, covering the point from which the central retinal vessels emerged and entered. Owing to the haziness of the vitreous, nothing more definite concerning the growth could be made out. About this time a patch of retino-choroiditis was discovered to the inner and lower side of the disk, and well forward toward the ciliary body. Under the influence of the iodide, vision and media rapidly improved, the former becoming normal, and the latter perfectly clear, with the exception of one large floating body, which was quite annoying to the patient. The disk was now seen to be inflamed and swollen, but these conditions quickly subsided. The bubble or vesicle-like body could be easily seen capping the central vessels, through which they were indistinctly visible at its edges. While bright and glistening, it was not transparent—a general opacity existing with no distinct nucleus. Later on, as the disk assumed a more natural appearance, a pedicle-like attachment was discovered which seemed to connect the growth with the inner

and lower portion of the physiological cup. By careful examination with the ophthalmoscope there remained no doubt that this was a true pedicle attaching it to the floor of the cup, though there was also some attachment to the vessels, as was proved by the absence of movements except when the eye moved. If there has been any change in the growth since it was first seen, it is a very slight diminution in size and apparent retraction from the superior branch of the vein to the inferior branch of the artery. Its nature must be a matter of most vague supposition. It resembles in some respects a cysticercus, yet it cannot be this, because there has been no increase in size, nor is there any accompanying inflammation of the disk since the subsidence of that connected with the retino-choroiditis. Glioma is uncommon at this age, and its stationary condition would preclude that. Neuroma rarely occurs in connection with cerebral nerves, and is usually without connection with the fibres of the affected nerve. Sarcoma can readily be excluded. Syphilitic growths may be passed by on account of the lack of specific history and symptoms, besides the non-affection of the growth by large doses of the iodide. What then may be the nature of this growth? It may be a hypertrophied nerve fibre, or a fibre which has taken on cystic degeneration. Again, it may be a slowly forming cyst. It cannot be an aneurism, for there are no signs of blood or pulsation in it. Lastly, it may be the swollen end of the hyaloid artery, having perhaps been left congenitally in that condition.

STRANGULATED INGUINAL HERNIA AND EPIPLOCELE; RADICAL OPERATION; EXCISION OF MAJOR PORTION OF OMENTUM; RECOVERY.

By THOMAS S. K. MORTON, M.D.,
SENIOR RESIDENT SURGEON AT THE PENNSYLVANIA HOSPITAL.

F. D., a well-conditioned, muscular negro, æt. twenty-two, was admitted into one of the surgical wards of the Pennsylvania Hospital, on August 27, 1886.

Surgical History.—Ten years ago, he noticed a small lump or kernel in his left groin. It gave him no pain or annoyance, and, but for feeling its presence, he would not have known that anything was amiss. During almost the whole of that time, his work was of the hardest description. Exactly forty-eight hours previous to admission, while loading baskets of peaches upon a steamer, he felt a sudden pain, and a sense of something giving way in that groin, and was compelled immediately to abandon his work. Upon examining the spot, he noticed that a large swelling had appeared. This, as well as the pain, increased greatly; nausea soon set in, and he vomited almost incessantly until admission, for which purpose he walked nearly a mile!

Upon Admission.—He arrived much exhausted by his walk, and vomiting had then ceased. Temp. 102°; pulse rapid, though fair. A large tumor, presenting all signs of strangulated inguinal hernia, was present in the left groin and scrotum. Warm bath, mild narcotism, and ice-bag locally, were employed for an hour, by which time he had reacted from the exhaustion incident to the walk. Anæsthesia to absolute relaxation was then induced, and thorough though ineffectual taxis was made. Everything being in readiness, I at once proceeded to operate.

Operation at 4.30 P.M. The parts, previously well shaved, were washed with ether, then with soap and water, and finally with 1 : 1000 bichloride of mercury solution. A three-inch incision was carried down to the sac, when a stricture at the external ring was discovered and divided. Carrying the finger along the canal, another but tighter, constriction was found at the internal ring, and similarly disposed of. These divisions seeming to make no difference as regards reducibility, the sac was opened to the length of the external incision; it contained no liquid, but was adherent to the contents throughout by easily broken-up lymph. It contained *almost the whole omentum*, and about six inches of small intestine, the former being crowded with small, clotted extravasations of black blood, and had the appearance of beginning gangrene, while the gut, though of an exceedingly dark brown color, had not quite so bad an appearance. A slight thickening and constriction of the sac was found, corresponding to the external ring, while a much more firm narrowing marked the site of the internal ring, the gut between being much swollen and bulbous. Both of these additional constrictions were cut, and the exposed parts covered, for a period of ten minutes, with towels wrung out of 1 : 5000 $HgCl_2$ solution. At the end of that time the gut had begun to assume a beautiful pink tinge at its mesenteric attachment; but the omentum remaining unchanged, its excision was determined upon. For that purpose, it was drawn down until a healthy portion became visible, which was ligated in three portions with "fourteen" day chromicized catgut, the sphacelated portion cut away, and its pedicle returned to the abdomen. Reduction of the bowel was easily accomplished. The retracted sac was then obliterated by deep sutures, the columns of the external ring neatly approximated by four sutures of fourteen-day catgut, and the external incision by interrupted sutures of seven-day catgut, covering in a five-strand drain of the same substance having exit at the inferior extremity of the wound. The dressing consisted of protective, eight thicknesses of moist (1 : 1000) bichloride gauze, thickly powdered upon its wound-surface with iodoform, a large pad of bichloride cotton (dry, but also 1 : 1000), and a double spica of gauze bandage over all.

Progress.—His temperature, after the operation, registered 98°; next morning, 100⅕°, where it remained for one day, and then dropped to 100° for one day more; then to 99°, where it stood for twelve hours, and then permanently regained the norm.

Mild narcotism, and no food for two days, comprised the after-treatment. Bowels moved of their own accord on the seventh day, and continued to do so regularly. No signs of peritonitis at any time showed themselves, and he was without discomfort throughout convalescence.

The dressing was not touched until the tenth day, when, on account of loosening, it was removed, and perfect union found throughout the wound, save a small, superficial ulcer, which marked the former exit of the catgut drain—for both it and the external sutures (buried portions) had been completely absorbed. Except for a few days treatment of this ulcer, no further dressing was employed. He was allowed to get up on that (the tenth) day, and was employed for light work about the wards until September 27th, when he returned to his work. At the time of his discharge, there was no sign of redescent or appearance of the hernia, and he is not even wearing a truss.

For the operation upon, and the privilege of publishing, this case I am indebted to the courtesy of my chief *pro tem.*, Dr. John B. Roberts, acting for Dr. R. J. Levis.

MEDICAL PROGRESS.

Leopold on the Technique of the Sänger Operation.—Leopold formulates the following rules as the result of his experience with the Sänger operation:

1. The patient should be examined and disturbed as little as possible before the operation. The internal and external genitals, however, should be washed with sublimate solution (1 : 2000), or with a three per cent. carbolic acid solution.

2. The operation should be performed as early as possible, at the furthest by the end of the first period of parturition.

3. The operator must be assured of efficient assistants, who have been previously instructed in all the details of the operation.

4. The uterine section should reach only to the movable peritoneum, and ultimately be prolonged to the fundus.

5. After the removal of the child, and before the separation of the placenta, the uterus is removed from the abdominal cavity, and

6, hemorrhage is checked by compression with an elastic ligature, and finally by manual compression.

7. The uterine wound is sutured with silver wire, the decidua being avoided. Coaptation of the muscular surfaces is best effected when, before the sutures are drawn up, the uterus is compressed laterally. The superficial sutures are best made with thin silk.

8. The elastic ligature is now removed, and the further procedures follow the rules of a laparotomy.—*Centralb. f. Gynäkologie*, No. 32, 1886.

The Physiological Treatment of Cholera, after Semmola.—We abstract from a recently published work of Semmola (*Nuove Ricerche Terapeutiche sul Cholera Asiatica*), in which this well-known Italian clinician has laid down the clinical and therapeutic experiences gathered during the recent Italian epidemic of cholera, his views on what the author calls the "physiological treatment of cholera." Semmola holds that no cure can ever be expected from any medication directed specifically against the comma-bacillus, and also warns of too heroic a therapeutic interference with the symptoms of the premonitory and the algid stages.

A physiological treatment, in the judgment of the author, is one which is directed toward raising the vital energy of the body, so as to endow the same with a higher power of resistance against the disease without injuring the entire system by the biochemical action of pharmacal agents.

The main features of this treatment are the following:

1. Absolute rest of the affected organs—viz., the gastro-intestinal tract—by observing a strict fasting on appearance of the first diarrhœa stools. As long as the diarrhœa persists no food whatever is to be taken. Over six thousand clinical observations in Naples have shown that even five or six teaspoonfuls of bouillon given prematurely (*i.e.*, before the stoppage of the diarrhœa), sufficed to reproduce the gravest symptoms, such as algidism and asphyxia. After the disappearance of diarrhœa and vomiting, milk may be given in very small quantities.

2. Timely excitation of the physiological powers by therapeutic, or, rather by physiological means. The best of these are, undoubtedly, repeated warm baths. To prove beneficial the baths must, however, be given in the first period of the disease, before any sign of algidism has set in. The application of the warm bath in cholera has been in vogue also in former times, but never yielded any benefits, as it was only employed in the algid stage of the affection. The warm bath is not alone useful, as was held formerly, on account of the supply of heat to the cold surface of the body—a mere physical process—but also and particularly on account of the physiological influence it exerts on the economy. The warm bath excites the peripheral nervous system, and at the same time, by reflex action, the centre of circulation. The consequence of this excitation is a harmonious restoration of the functional physiological relations between the surface of the body and its internal apparatus, especially those of the digestive tract. True, this biological process can only be realized in the first stage of the disease, when the biological relations between the superficial and internal organs have not yet been essentially altered or broken off altogether.

Through diaphoresis the bath favors besides the elmination of toxic substances from the system, which, by affecting the various nerve-centres, cause ominous alterations in the secretory, vaso-motoric, and general oxidation processes. If necessary, the bath can be repeated every one or two hours. After the bath, the patient is to be wrapped up in woollen blankets, and is to be given warm aromatic and weak alcoholic drinks. It is well to give also small doses of opium (laudanum, liqueur de Batteley, chloridine), in order to render the nervous centres less susceptible to the toxic principles, and in order to reduce the increased intestinal secretion. Opium, given at the proper time, aids and supplements the physiological treatment.—*Therapeutic Gazette*, October 15, 1886.

Syphilis and Gestation.—Hirigoyen makes the following notes as to the influence of syphilis on the pregnant female:

1. In the special maternity service of Bordeaux the proportion of syphilitic women is five per cent.

2. The most frequent complication is a premature termination of the pregnancy, a matter which the duration of the syphilis greatly influences.

3. In eight pregnancies among women syphilitic for a year or more, there were two children born living but very puny.

4. In twelve women attacked with syphilis during the first four months of pregnancy, there were twelve stillbirths.

5. Syphilis acquired during the last three months is very dangerous to the fœtus, at least fifty per cent. being stillborn.

6. Over three-fourths of the infants of all syphilitic women were stillborn.

7. To be efficient, energetic antisyphilitic treatment must begin with pregnancy, and continue throughout its entire duration.—*L'Union Médical du Canada*, October, 1886.

The Physiological Action of Menthol.—Dr. Goldscheider, at a meeting of the Physiological Society of Berlin, discussed the action of menthol on the sensory nerves. It was well known that it produced on the skin a sensation of cold, which was commonly ascribed to evaporation. On the other hand, the same sensation, when produced in the mouth by solutions containing menthol or peppermint, was explained by a supposed astringent effect. Dr. Goldscheider had come to the conclusion that neither of these explanations was correct. He made his experiments with a solution of menthol in lanolin, which he rubbed into circumscribed regions of the skin. After the rubbing, the thermometer showed, in all such places, an increase of temperature to the extent of two degrees C., notwithstanding the marked sense of cold produced. The hypothesis of evaporation was excluded by the fact that the feeling of

cold was no less marked when the part rubbed was covered with a watch-glass, and could, therefore, be produced only by direct stimulation of the nerves of sensation of cold. Again, if of corresponding places on the forehead, where these nerves are most abundant, one were rubbed with the menthol ointment, and the other not, bodies which previously had caused no particular sensation would be felt as cold on the former spot, but not on the latter. Dr. Goldscheider, observing that while some regions, as the forehead, were especially sensitive to cold, others, as the elbow and the volar side of the wrist, were so to heat, found that the inunction of these with menthol produced a sensation of warmth, though less striking than that of cold in the former regions; and he called attention to the recent communication of Professor Herzen on the precisely analogous results of pressure on the nerve-trunks in these regions respectively. He therefore concluded that the sensations, in some places of cold, and in other places of heat, produced by menthol, were purely subjective and consequent on the direct stimulation of the special nerves of temperature, those usually cognizant of cold being far more sensitive to its influence than were those adapted to receive impressions of higher temperatures.—*British Medical Journal*, August 21, 1886.

Acquired Alterations in the Elasticity of the Larger Bloodvessels.—Israel has experimented upon the elasticity of the vessels in health and disease in the following manner: Pieces of the aorta, homologous in size and point of origin, were appropriately suspended, and the degrees of extension produced by the application of given weights were noted.

As the result of the study of fifty such preparations it was seen that the elasticity (or, more strictly speaking, extensibility) was most marked in the vessels of the chlorotic of both sexes, and was less pronounced in nephritics and especially in drunkards. The diminished elasticity of the vessels in the class last named is regarded as explanatory of the not infrequent sudden deaths in this class, with negative results on post-mortem section.—*Centralb. f. klin. Med.*, Sept. 18, 1886.

Posology of some of the Newer Remedies.—The *Rundschau Leitmeritz*, which is, by the way, one of the best of the German pharmaceutical journals, gives the following information concerning the dosage of the remedies which have come into general use since the last edition of the *Pharmacopœia*:

Osmic acid: Best administered in pill form (made up with Armenian bole). The dose is $\frac{1}{60}$th grain, which may be repeated several times a day.

Agaracine: Best administered in combination with Dover's powder. Dose $\frac{1}{12}$th to $\frac{1}{6}$th grain.

Aloin: From $\frac{1}{8}$ of a grain to $3\frac{1}{2}$ grains, in pill form.

Antipyrine: Dose from 75 to 90 grains, divided into 3 portions, one of which is to be taken every hour.

Bismuth salicylate: Dose from 5 to 7 grains, in pill form. In typhoid this dose may be doubled and repeated every hour, up to ten or twelve times.

Canabinone: From $\frac{2}{3}$ to $1\frac{1}{2}$ grains. Best administered mixed with finely ground roasted coffee.

Caffeine: To commence with, the dose should not be over 3 grains, but this may be repeated every hour until four doses are taken, or say 12 grains *per diem*. This may be increased to double the amount mentioned. The *benzoate of sodium and caffeine* is a double salt which contains one-half its weight of pure caffeine. It resembles the *salicylate of sodium and caffeine*, but the latter contains more caffeine (10 parts of caffeine to every 16 parts of the double salt).

Colocynthin: Used subcutaneously. The dose is from $\frac{1}{6}$ to $\frac{1}{3}$ grain. It may also be administered in pill form by the mouth, the requisite dose being from $\frac{1}{3}$ to 1 grain.

Convallamarine: Internally, in pill form. The dose is from $\frac{3}{4}$ to $1\frac{1}{4}$ grains, and it may be repeated every hour, until a total of 15 grains is reached.

Euonymin: Best given in pill form, combined with extract of belladonna or hyoscyamus. The dose is from 3 to 10 grains.

Helleborein: May be given in pill, solution, or in suspension in some mucilaginous vehicle. The dose is from $\frac{1}{6}$ to $\frac{1}{3}$ grain, repeated four or five times in the course of a day.

Tannate of mercury (protoxide) may be given in a wafer. The dose is $1\frac{1}{2}$ grains repeated thrice daily.

Nitroglycerine is best given in alcoholic or oily solution. The dose is from $\frac{1}{333}$th to $\frac{1}{60}$th grain, repeated several times a day. Rossback prefers ether as a solvent. His formula for its use is as follows: Dissolve $1\frac{1}{2}$ grains of nitroglycerine in sufficient ether, and add the solution to a mixture consisting of two ounces of powdered chocolate and one ounce of gum-arabic. Mix very thoroughly and divide into 200 pastilles. Each pastille will thus contain $\frac{1}{333}$d grain of nitroglycerin.

Picrotoxine: In aqueous solution. Dose from $\frac{1}{8}$ to $\frac{1}{6}$ grain.

Sulphate of thalline may be given dissolved in wine or water (with some corrigerant). The dose is from 4 to 8 grains.—*St. Louis Medical and Surgical Journal*, October, 1886.

Thymol as a Tæniafuge.—Dr. Numa Campi records as follows the experience of himself and of Dr. Vanni in the use of thymol or thymic acid as a tæniafuge:

Dr. Vanni, in the first case of tænia treated by thymol, gave three grammes (gr. xlv) in divided doses through the day, and twenty grammes (℥v) of castor oil at night, but succeeded in obtaining only five or six segments of the worm. On the following day, however, he administered six grammes (℥ iss) of thymol, divided into twelve doses, to be taken every fifteen minutes, and at the end of the third hour the entire worm, including the head, was expelled.

I adopted the following method with my first case: In the evening I ordered twenty grammes (℥ v) of castor oil to be taken fasting; in the morning I prescribed eight grammes (℥ ij) of thymol, divided into twelve doses, one to be taken every quarter of an hour; twenty minutes after the last dose had been swallowed, another twenty grammes (℥ v) of castor oil were taken. A few minutes after, a tænia medio-canellata three and a half metres in length was evacuated, the head being dead. To be sure, I had no Shultze's table with me to prove that there was no movement, but I touched the worm repeatedly with a hot coal, and observed no sign of life.

It is very important during the administration of the thymic acid, to give the patient some cordial and stimulant; cognac, or rum, will be found suitable. Thy-

mol is very depressing, according to the experiments of Husemann, and this will explain its action on the nervous system. Even with small doses, the pulse becomes small and frequent, the respiratory movements slow, and the temperature is lowered. These effects, however, are easily and promptly counteracted by the use of stimulants.

I must call attention to another fact. Husemann and Lewin say that thymol should be administered in small doses. On account of its caustic action, they claim that there is danger of producing digestive disturbances and gastro-enteritis. They recommend two or three teaspoonfuls of a one-half per cent. solution during the day. While it is true that we can never be too prudent in the practice of medicine, these doses are too fearfully homœopathic, when we consider that eight grammes of thymic acid may be given in two hours and a half without producing the least gastro-intestinal disturbance.

The use of thymol is advocated for the following reasons:

1. Because this remedy, with the exception of a depressing effect, easily counteracted, produces no disturbance of the stomach or intestines.

2. On account of the rapidity and simplicity of its action, compared with other remedies, which require *courses of treatment*, divided into three periods, the preparatory, the expulsive, and the consecutive.

3. On account of the advantages it offers of being both a tæniacide, and a tæniafuge.

4. Because in case of an error of diagnosis the remedy would produce an efficient purgation and disinfection of the alimentary canal.

5. Because it is reasonable to suppose that since thymic acid succeeds in expelling the tænia medio-canellata, the worm which above all others resists the action of anthelmintics, the same remedy will be of service in expelling all other varieties of flat worms.

6. Because we have, as yet, always been successful with the use of thymic acid, and have probably found a real specific, which, up to the present, did not exist.—*Buffalo Medical and Surgical Journal*, October, 1886.

The Lower Limit of the Pleura.—Mr. W. Arbuthnot Lane presents in *The Journal of Anatomy and Physiology*, April, 1886, an interesting paper upon "Some Variations in the Human Skeleton." Mr. Lane observes that the lower limit of the pleural cavity behind can be determined clinically by measuring the lower ribs, and especially the twelfth. It will be found that if the twelfth ribs are under two inches in length, the pleura may not even reach their upper margin, or, at the most, it may extend but a little way over the inner half of their anterior surface. As the length of this rib increases, the pleura extends still lower down, and in some instances it may reach a point an inch and a half below the lower border of the rib. If the last rib be over two inches in length, the lower limit of pleura crosses it obliquely at its centre, so that it bears a direct relation to the length of the rib. This relationship of the pleura to the length of the last rib shows that there need be no risk of opening this cavity in the ordinary operation of lumbar nephrectomy.

As to the extent of the pleural cavity laterally, Mr. Lane finds—taking the average of a number of cases—that the lower limit of the pleura crossed the seventh costal cartilage obliquely, about three quarters of an inch below its articulation with the rib, then the end of the eighth rib, or the cartilage immediately below it, the ninth rib a quarter of an inch above its extremity, the tenth rib three-quarters of an inch, and the eleventh one and a quarter inches from its outer end. In the axillary line, which is at least sometimes defined as a line passing vertically down from the head of the humerus, Mr. Lane found that in the large majority of cases the lower limit crossed the tenth space or the eleventh rib, not unfrequently lower on one side than on the other, but not much more frequently on one side.

Tetanus Resulting from the Hypodermatic Injection of Quinine.—Rubino records a case of miliary fever in a six year old girl, in which after several days' exhibition of quinine by the mouth and by enemata, he administered the drug subcutaneously. At the end of a month the child was wholly free from fever, but complained of pain in the left arm at the point of introduction of the last injection. Three days later trismus and tetanus appeared. Death on the sixth day.

The author regards the case as essentially one of traumatic tetanus.

Analogous cases of tetanus from the hypodermatic injection of quinine are recorded by Oderaine (*Gazette Hebdomadaire*, 1872), Bortolazzi (*Gazz. degli Ospitali*, 1884, No. 80), and Roberts (*Lancet*, 1876).—*Centralb. f. klin. Med.*, September 18, 1886.

The Analgesic Action of Carbolic Acid and the Cresol Group of Compounds.—Dr. McNeill has made some experiments on himself and others with carbolic acid and the cresols to determine whether their local anæsthetic influence can be utilized. He finds that a mixture of 60 parts of acid and 40 of oil renders the skin of the arm insensitive to pain caused by superficial incisions. It produces, however, a sensation of heat, but this can be removed without any interference with the anæsthesia by the application of glycerine.

A mixture of glycerine and acid will have the same effect as the oil and acid, but only if twenty per cent. stronger. Impure carbolic acid having appeared more effective as a local anæsthetic than the absolute phenol, Dr. McNeill tried the effects of several of the substances allied to carbolic acid which are produced in the distillation of coal. Several of these, as benzol and toluol, had no effect. A mixture of ortho- and para-cresol (sold as cresolene) was found to have a similar effect to carbolic acid, but was not so powerful. Paracresol, on the other hand, acted more powerfully, equal parts of this substance and oil producing anæsthesia.

It is worthy of note that whilst analgesia is produced the sensation of touch remains, and that the deeper parts may be opened painlessly by introducing some of the anæsthetic compound into the tissues laid open.

Dr. McNeill records some cases in which he performed minor operations without pain by the aid of carbolic acid or cresol. No sloughing or other trouble followed their use.

As a mixture of glycerine and carbolic acid is a less powerful corrosive than a mixture of oil and acid, Dr. McNeill suggests that glycerine should be administered in poisoning by carbolic acid instead of oil.—*Med. Chronicle*, July, 1886.

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PERFORATING APPENDICITIS.

The clinical and pathological studies of the past twenty-five years have led to remarkable improvements in the methods of treating the various affections of the cæcum and appendix; still, the anatomical relations are so uncertain, the symptoms often so complex, and the causation so varied, that the precise localization of the disease may be obscure, and the indications for treatment doubtful. In the *American Journal of the Medical Sciences* for October, 1886, Fitz contributes an exhaustive study of this subject under the title of "Perforating Inflammation of the Vermiform Appendix; with Special Reference to its Early Diagnosis and Treatment;" and his investigations give us a clearer knowledge of the exact relation of inflammation of the cæcum and appendix to peritonitis and perityphlitis.

The term typhlitis is usually employed to designate inflammation of the appendix and of the cæcum; perityphlitis when the peritoneum in the neighborhood of these parts is involved; and paratyphlitis when the connective tissue behind the cæcum is affected. As in the great majority of the cases of fatal typhlitis the appendix is ulcerated and perforated, the term perforating appendicitis is most appropriate. The result may be either a circumscribed peritonitis, or paratyphlitis. The anatomical relations of the part determine which of these conditions will prevail, for the appendix may be either surrounded by peritoneum and free in the cavity, or, as is not infrequent, it may be entirely behind the serous layer, which may, however, be involved by contiguity. Fitz has collected 257 cases of peforating inflammation of the appendix, and has carefully analyzed every symptom. For comparison, he has also collected 209 cases of typhlitis and perityphlitis from other causes.

The well-known etiological importance of inspissated fecal masses and foreign bodies in inflammation of the appendix is borne out by the fact of their presence in three-fifths of the cases. The proportion is doubtless larger, as in many cases the fecal concretion or foreign body is lost in the discharge, or, as in an instance reported in *Revue de Médecine*, for June, the concretion may pass in the feces. Strain, as in lifting, was recorded as preceding the attack in 19 cases. Digestive disturbances—constipation, vomiting, or diarrhœa—were present in 30 cases of appendix inflammation and in 53 of the instances of typhlitis and perityphlitis from other causes. Tuberculous and typhoid ulcers play a less important part in the etiology of perforative disease of the appendix, as there were only 8 instances of the former and 3 of the latter. A percentage of eighty illustrates the special liability of the male sex to this affection, and seventy-six per cent. of the subjects of the entire list were under the age of thirty years.

The recurrence of attacks of appendicitis is well recognized, and eleven per cent. of the cases had presented similar symptoms of greater or less severity before the final attack.

The course and results of the inflammation show remarkable variations. The frequency with which the tube of the appendix is found to be obliterated, in a greater or less extent, points to recovery as a common sequence of appendicitis. When perforation occurs, the result will depend on the position of the tube. A circumscribed peritonitis is probably the most common sequence, and the contents of this peritoneal abscess may become absorbed or may escape into the general peritoneum. Perforation externally, or into the rectum or bladder, may occur, and in one instance the abscess burst into the small intestine, ulcerated an artery, and caused death from hemorrhage. When the appendix lies behind the peritoneum, the inflammation of the connective tissue speedily forms an abscess, which may attain large size and perforate externally in the groin, in the lumbar region, or at the navel. In some of these instances the destruction of tissue is extensive, and the pus may pass downward as in psoas abscess, or upward into the pleural cavity.

The symptoms of the affection have been very carefully analyzed by Fitz. Of these the first and most constant is a sudden, severe abdominal pain, which was present in 84 per cent. of the cases, and in 48 per cent. was localized in the right iliac fossa. This sudden onset may occur in apparently healthy individuals, or may be preceded by diarrhœa. Doubtless, in most instances, it coincides with the perforation, or it may represent the separation of the fresh ad-

hesions of an acute appendicular peritonitis; often it precedes the manifestation of a more general process. In 61 cases, in which it was possible to determine the date of occurrence of this important symptom, it occurred in 67 per cent. on the first day, in 8 per cent. on the second, and in 20 per cent. on the third. Nausea and vomiting are often induced by the great pain; constipation is usually present. Fever very constantly follows, but the range is rarely high. The appearance of a circumscribed swelling is of the utmost value in diagnosis, and it has its usual seat "in the right iliac fossa below a line extending from the anterior superior spine of the ilium to the navel, nearer the former, and two finger-breadths above Poupart's ligament." It represents the accumulation of the exudation, which, at first scanty and fibrinous, may in two or three days form a large purulent deposit. Dulness may be obscured by adherent coils of intestine, or the abscess may be gaseous. The pain on pressure and tenseness of the abdominal muscles may necessitate the use of ether to make a satisfactory examination. Even when a positive tumor is not palpable there is a circumscribed resistance and, later on, a sense of fluctuation. This symptom usually appears so late as to be of very little use in diagnosis. The onset of diffuse peritonitis is indicated by general abdominal pain which, in the largest number of cases, sets in on the second, third, and fourth days. This complication is almost invariably fatal. In 176 cases in which the day of death was noted, 50 per cent. occurred in the first week, 31 per cent. in the second week, and 4 per cent. in the third week.

Perforative appendicitis is most likely to be confounded with stercoral cæcitis, a condition not uncommon as a result of protracted constipation. The pain in this affection is slight, the fever mild and delayed, and the tumor, which can be felt, is an elongated, nodular or doughy mass. Perforating disease of the cæcum is very rare. A careful consideration of the symptoms and mode of onset will usually suffice to make a diagnosis between appendicitis and intestinal obstruction, pelvic peritonitis, and renal or biliary colic.

The termination in resolution of a perforating appendicitis is rare, and we have no evidence of the proportion of cases in which it occurs. In typhlitis and perityphlitis from other causes it is more frequent, and in 180 cases of this kind there terminated by resolution 58, by spontaneous evacuation 33, while 89 cases were opened surgically. The treatment of this affection has been too much in the hands of physicians, and in too many cases there is an unjustifiable delay while waiting for the more definite signs of suppuration. If good is to be gained by an operation the earlier it is done the better chance has the patient for recovery. Fitz very correctly states that if, after the first twenty-four hours from the onset of the severe pain, the peritonitis is evidently spreading and the condition of the patient is grave, the question should be entertained of an immediate operation for exposing the appendix and determining its condition with reference to its removal. The fact that 34 per cent. of the cases died during the first five days justifies operating at the earliest possible period, and of late surgeons have interfered as early as the third day. Laparotomy is called for in a majority of the cases, as by it alone the condition of the parts can be accurately ascertained.

The carefully collected facts in Fitz's article will materially assist in the diagnosis of this grave disease, and will embolden surgeons to practise an early operation which can alone, in many instances, give the patient a chance of recovery.

NOXIOUS OR OFFENSIVE TRADES.

There is a demand for systematic inquiry into dangerous and offensive processes of trade with the view of determining the appropriate means of preventing a nuisance or injury to health therefrom. It is a well-known fact that workmen suffer in their health from a variety of influences connected with their occupations, and we are accustomed to speak, in a general way, of the diseases thus caused as industrial diseases. It is not difficult to prove that the processes of certain trades are offensive and an annoyance to the neighborhood, but it is not so easy to demonstrate that their effects are injurious to health. Nevertheless it may be stated upon general principles that whatever pollutes the air we breathe, or the water we drink, tends to impair health and calls for the intervention of the restraining power of the law.

Sanitary supervision should take cognizance of the health of the workmen and also guard the public from the influences of such industrial processes as interfere with the comfort and tend to jeopardize the health of the community.

In the prevention of diseases arising from industrial labor the coöperation of the employer and employed is indispensable. Both are equally concerned in the labor of prevention, and more can be accomplished by their coöperation than by local authoritative action, though the latter has its salutary influence. The buildings, appliances, and manner of conducting the work should be arranged with the view of affording the greatest possible protection to the workmen. Personal cleanliness and thorough ventilation of the workshops are among the most important measures of safety.

The duty of the employer, however, is only half performed when he has provided means for the protection of his workmen; the obligation also rests upon him of providing the means of preventing the

escape of noxious or offensive fumes or gases into the atmosphere, or the pollution of streams which may be used as the source of water-supply, an obligation which, unfortunately for the public, is oftener violated than fulfilled. Nuisances of this description are frequent and constitute one of the most perplexing subjects with which a health board of a large town has to deal. It is not because the methods of prevention are difficult of discovery and application, for human ingenuity is adequate to the task; but the manufacturers fail to interest themselves in that which concerns them less than the public generally, and object to the expense of apparatus and appliances not essential to their processes of manufacture, though necessary to protect the people in the enjoyment of their right to pure air and uncontaminated water.

Ordinarily, the sanitary law provides the remedy for nuisances of this description which are more or less directly or indirectly injurious to public health, and designates the proceedings to be taken under its provisions; but the administration of the law often fails in the accomplishment of its intended purpose. It frequently happens that when complaint is made against an establishment by reason of the escape of nauseous or injurious vapors or gases, an attempt is made to antagonize interference by the use of petty subterfuges and artful temporizing too well known to the manufacturer. Influence, which has a mighty sway, is made to do valuable service in thwarting any effort made to abate the nuisance.

The suppression of the objectionable processes is construed as a suppression of the business itself, and the effort of the sanitary authorities to correct the evil is paraded as a menace to the trade and business of the town. The result is too often a withdrawal of the proposed corrective measures or the adoption of some temporary expedient savoring of compliance with the law, while the public continue to submit to the evil. The remedy for such abuses lies in adequate laws based upon the results of thorough scientific investigation, and their intelligent, impartial, and resolute enforcement. In framing such laws the interests of the manufacturer as well as of the public should be zealously guarded, so that, while protecting the one, the other shall not be needlessly sacrificed.

TREATMENT OF HERNIA OF A MUSCLE.

This uncommon lesion consists in the protrusion of a portion of muscle through a rupture in its containing fascia. Two cases of this sort having recently come under the care of Giess, and he has made them the subject of an interesting communication in the *Berliner klinische Wochenschrift*, No. 11, 1886. The first case was that of a man who had a hernia of the tibialis anticus muscle caused by a blow with a stone. Palliative treatment by means of strapping and bandaging did no good, and Giess cut down on the hernia and removed the protruding portion of the muscle with scissors. After a few days the hernia had disappeared and suppuration came on. Giess then cauterized the protrusion repeatedly with nitrate of silver. The result was unsatisfactory as the hernia persisted, although it was reduced in size.

In the second case a similar tumor was treated by incision, removal of the protrusion, freshening of the edges of the opening in the fascia, and suturing of the fascia with catgut. The superficial wound was also sutured, and the limb confined in a plaster-of-Paris dressing. The result of this operation was perfectly satisfactory. The wound healed by first intention; the plaster dressing was removed on the sixth day, and on the twenty-first day the patient left his bed with a solid cicatrix, and in a few days had full use of his leg.

The method adopted in this case seems rational, and the success which followed its employment by Giess confirms this impression.

A curious mixture of bad pathology and good surgery is presented by a case reported in the *Virginia Medical Monthly*, for October, by Dr. Wilkerson, under the following startling caption: "Incision into the pelvis of the kidney and treatment topically through the drainage tube, for the cure of Bright's disease." The patient, a man aged thirty, had received an injury of the back, and six months after began to fail in health, became emaciated, had hectic, and passed blood and pus in the urine. Deep palpation on the right side gave an indistinct sense of fluctuation. Lumbar nephrotomy was performed, over a pint of matter was discharged, the sac was swabbed out, and a drainage tube inserted. The man made a good recovery. The case was evidently one of pyelonephrosis, and the treatment pursued most judicious and successful. It is remarkable how deep-rooted is the idea that all affections of the kidney belong to Bright's disease: fortunately for the patient, the doctor's surgery was at least half a century in advance of his pathology, and it is a pity that the report of so interesting a case should be marred by a title both misleading and erroneous.

Last Wednesday week Prof. S. W. Gross, at the Jefferson Medical College Hospital, performed nephrolithotomy upon a man who had for years suffered with pain in the region of the kidney, accompanied by occasional attacks of hæmaturia, and the presence of a few red blood corpuscles, and an abundance of oxalate of lime crystals in the urine, together with strings of mucus and epithelial cells

from the pelvis of the kidney. From a careful study of the symptoms of the patient, Dr. Gross diagnosticated an oxalate of lime calculus in the left kidney, and proceeded to an operation which completely verified his opinion. The calculus was removed through an incision below and parallel to the twelfth rib, and was found to be about the size and shape of a flattened acorn. The patient is now doing well, and there is every prospect of his speedy recovery. We hope, in due time, to present a full report of the case.

REVIEWS.

The Anatomy of the Intestinal Canal and Peritoneum in Man. By Frederick Treves, F.R.C.S. The Hunterian Lectures for 1885. Vellum, 4to. pp. 66, pl. iv. London: H. K. Lewis, 1885.

It is not given to every man in these days to make a study of the gross anatomy of the human body, and yet add materially to our knowledge. But this beautiful edition of Mr. Treves's Hunterian Lectures proves that it will be given to every man who will devote equally patient painstaking labor to his subject. The lectures are based on the dissection of one hundred bodies, in which the abdomen was opened, and every part labelled and drawn, and studied *in situ*, and then after removal. We cannot go over, as we would like to, every error the author points out, and every new fact he states, but can only indicate a few.

The length of the bowel seems independent of height, weight, etc., and, curiously enough, in women it is in the average longer than in men. We have long known that the gentler sex had more "bowels of compassion" than we men, but as to "bowels of digestion and absorption," we should have sworn that we were the better furnished. The holes in the mesentery, he shows are undoubtedly due to atrophy; the pelvis contains not only coils of the ileum, but of the jejunum, and not seldom a portion of the transverse colon; the various forms of cæcum he classifies under four types; the sigmoid flexure he shows to be chiefly pelvic (as indeed also is the cæcum), and omega-shaped; and he explains why in about four per cent. of subjects the surgeon attempting to reach the ascending colon by lumbar colotomy will miss the bowel, because it is not in its accustomed place.

These are but a few points in a hasty *résumé* of the many valuable facts and applications with which the author favors his interested readers.

Mr. Treves writes so well that we shall be disappointed should he find increasing professional work interfere with his literary labors.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Neurology.

Stated Meeting, October 8, 1886.

The Chairman, L. Putzel, M.D., in the Chair.

Dr. Julius Althaus, of London, a Corresponding Fellow of the Academy, read a paper on

some points in the pathology and treatment of paraplegia dependent on pott's disease.

He commenced by relating the detailed history of a case. The patient was a florid-looking girl, of twenty, who lived out at service. She had enjoyed good health from early childhood. She had never had any scrofulous affections of the glands or other parts, and there was no phthisis in her family. Moreover, she had never, so far as she knew, received any injury to the spine. Two years before she came under observation, she suffered from an attack of rheumatic fever; but, on recovering from this, she went back to service. Nine months later, however, she began to suffer from severe pain in the right foot, which was soon followed by marked loss of power in the right leg. Eventually this was followed by pain and paralysis in the left leg also. She then became confined to bed, and for a considerable time was treated in a provincial hospital, without any benefit.

When she came under Dr. Althaus's observation an examination showed that there was almost complete paralysis from the hip-joint down, on the right side, and less marked paralysis in the left limb. On applying the faradic and galvanic currents, responses were obtained with unusual facility. The superficial reflexes were also unusually brisk; and the same was true of the deeper reflexes as well. There was no history whatever of spontaneous cramps or of muscular rigidity. There were more or less coldness, lividity, and clamminess about the foot and instep. The different forms of sensation in the entire limb were perfectly normal. The left side was in all respects less seriously affected than the right.

A distinct prominence of two of the dorsal vertebæ was clearly recognizable. There was no pain in the spine, and no increase of temperature; but the mobility of the spinal cord was much impaired. The commencement of the deformity, it was ascertained, had been coincident with that of the pain and paralysis fifteen months before. The catamenia were regular, and the nutrition of the patient well preserved.

It seemed evident that there was more or less thickening of the spinal dura mater, and that in the cord itself there was interstitial myelitis present. The posterior columns were also implicated, as shown by the neuralgia that had existed so long; but it was probable that the central portion of the spinal cord was normal. She was placed on the iodide of potassium and cod-liver oil, with complete rest and frictions with liniments, etc.; but at the end of three months no improvement whatever was noted. At the request of Dr. Althaus, Mr. Pearce Gould then made an application of the actual cautery to the side of the spine and within a few days the patient was perceptibly better. The application was made four times in all, and the patient continued rapidly to improve. In a short time she was able to walk about as well as ever, and the vasomotor disturbances, shown by the coldness, lividity, and perspiration about the ankle, disappeared. The patient was then discharged practically cured, and entered a convalescent hospital for a time.

Patients suffering from paralysis due to Pott's disease, continued Dr. Althaus, have sometimes recovered by the opening of an abscess, and it cannot be doubted that the powerful counter-irritation resorted to in this

instance had brought about a cure by its effect upon the diseased structures involved. While the pain in the foot and leg had been very marked, there had never been any pain in the back. The former appeared to have resembled the lightning pains observed in progressive locomotor ataxia. He believed that this pain was due not to pressure on nerves or inflammation of the dura mater, but to irritation of the posterior columns of the spinal cord. The symptoms of coldness, lividity, and perspiration of the foot and instep showed that there was present some degree of vasomotor paralysis also. It was plainly caused by central disturbance.

Formerly it was supposed that paralysis occurring in Pott's disease was due to an actual destruction of the substance of the spinal cord; but if this was the case, recovery, which is so often noted, would be impossible. He deprecated the views of Shaw as to the causation of paralysis in these cases. In many cases of Pott's disease the entire cord suffers some amount of pressure, which gives rise to paralysis. Vulpian has shown by experiments on animals that paraplegia can be produced and removed at will by setting up and withdrawing pressure upon the cord, the paralysis being motor in character with no loss of sensation. But this simple form of paralysis is not all. Charcot and others have shown that there is habitually inflammation of the external layers of the spinal cord. Interstitial myelitis seems to be always present also. In the case related there can be little doubt that the coarser pyramidal fibres were affected by either myelitis or degeneration, probably the former.

How, continued Dr. Althaus, shall we explain the fact that while there was almost complete motor paralysis, especially on the right side, there was no loss of sensibility? This is a point which has not been hitherto satisfactorily explained, and is worthy of careful study. There are three different degrees of pressure upon the cord met with in cases of Pott's disease. In the first there is no pressure exerted upon the actual structures themselves. We have all seen cases in which there was considerable deformity, but no paralysis. The reason of this is that the pressure is just sufficient to displace the spinal fluid, but it does not extend to the cord itself.

The second degree is that which existed in the case under consideration. Here there was not only displacement of the spinal fluid, but also interstitial myelitis. In these cases of paralysis resulting from Pott's disease motion is more easily lost than sensation. There is not a single case of Pott's disease on record in which there has been paralysis of sensation without that of motion, while we constantly meet with the reverse of this—paralysis of motion without that of sensation.

The third degree of pressure is met with in those cases in which we have to do with complete transverse myelitis, implicating not only the columns, but the gray matter of the centre of the cord as well. In connection with this, we find anæsthesia and analgesia, with paralysis of the bladder and rectum, and a tendency to bedsores. In such cases, on account of the profound organic changes which have resulted from the pressure, recovery is impossible. It is important, therefore, that we should resort to the actual cautery at an early period in cases of Pott's disease in which paralysis results, in order to prevent the pathological process in the cord from going on to this advanced stage.

The conclusion of the paper was devoted to some consideration of the actual cautery. During the first half of the present century, he said, this means of counter-irritation was universally and indiscriminately used in all forms of spinal disease. During the first twenty years of the second half of the century, however, a reaction set in, and it was employed less frequently and more intelligently. Dr. Althaus said that, personally, he now never thought of resorting to the actual cautery in spastic spinal paralysis, tabes dorsalis, or other diseases of the cord proper, but that he had always found it of the greatest service in disease of the membranes.

Dr. V. P. Gibney said that he had been much pleased with the clinical picture which the distinguished visitor had presented, and also with the admirable manner in which he had connected the various symptoms observed with the pathological conditions undoubtedly present. The case detailed was one of great interest, and he thought that the point in regard to the service rendered by the actual cautery was well taken. This agency, however, is not the only means at our command for securing benefit to the patient. He had seen a large number of similar cases perfectly relieved within a week by the simple application of a jury-mast. Some time ago Dr. Charles J. Poore, of this city, read a paper in which he related a number of cases in which he was able to report very good results in the treatment of Pott's disease by the actual cautery. Afterward, however, he was much disappointed in its use, as the results in other cases were entirely unsatisfactory.

The author of the paper had cited but a single case, and though in this particular instance the method was eminently satisfactory, he did not think this was sufficient to prove its applicability in general. Personally, he believed the actual cautery to be objectionable, and particularly in the case of children. Although it is the present custom to apply it very lightly, as compared with the former practice, it is impossible to persuade patients that it will not hurt, and both the mothers and the children object very strongly to its use. Of course, this objection applies principally to private practice.

He thought, as Dr. Althaus had pointed out, that the cases which improve belonged not to the third stage, but to the neuralgic class of cases. He had a number of times applied the actual cautery in such instances, just as soon as any symptoms of paralysis showed themselves, but without securing any relief. When, however, he had stopped its use, and had resorted to suspension, and the application of a jacket, the patients got well. In these cases he was strongly in favor of giving large doses of iodide of potassium—say sixty, seventy, or eighty grains three times a day to a child. The objections to the use of the iodide in adults did not hold good in regard to children, with whom it almost always seems to agree perfectly, and who often grow fat upon it. With the iodide, and a jacket to support the spine, he had obtained better results than in any other way. The theoretical part of Dr. Althaus's paper he thought admirable.

Dr. Sachs said he agreed with the author of the paper that interference with motion is much more common than with sensibility. With regard to the treatment, he had no doubt that the actual cautery is efficient in certain cases; and yet in the one related by Dr. Althaus, he was inclined to doubt whether the credit for the cure should be given to this procedure entirely. Thus, in

addition, the patient was given complete rest and treated with cod-liver oil and other tonics. He had seen cases cured by complete rest alone. The same was true of many cases of chronic myelitis, and he called to mind particularly one case of post-puerperal paraplegia. He did not wish to discredit the treatment by the actual cautery, but it seemed to him that the other measures adopted were of considerable importance in bringing about the satisfactory result noted.

Dr. L. Putzel said that he had had a few cases in which the results were similar to those obtained by Dr. Althaus in the case reported in the paper. In three instances the improvement was so rapid after the application of the actual cautery that no reasonable doubt could be entertained as to its efficient agency. In the larger number of cases, however, this procedure was entirely without beneficial results. As to large doses of iodide of potassium, as recommended by Dr. Gibney last year, he had found in his experience that these also were without effect. He agreed with the last speaker that, after all, time and rest are the most successful remedies. Good feeding, however, is a matter of great importance also.

With regard to the absence of anæsthesia in these cases, it seemed to him that the explanation presented in the paper was a very plausible one. It certainly seemed to be a fact that there is some quality about sensory fibre which makes it resist pressure much more efficiently than motor fibre.

Dr. Althaus in closing the discussion said that the good effect produced by very large doses of iodide of potassium, as claimed by Dr. Gibney and others, was a very interesting matter, and that on his return to England it would give him great pleasure to test practically the efficacy of the treatment. It had been assumed that the rest and other treatment, beside the application of the actual cautery, had had much to do with securing the good result noted in the case which he had narrated. But this he believed was not the fact. For four months in the provincial hospital, and for three months after, when she came under his own care, the patient had been treated with complete rest in bed, and in addition she had been taking cod-liver oil and iodide of potassium, the latter in thirty grain doses three times a day. And yet no effect whatever was produced—the patient remained in precisely the same condition, without the slightest improvement. As soon, however, as the first application of the actual cautery was made (within less than ten days) a marked improvement in the paralysis commenced; and this rapidly became more and more marked under the repeated use of the cautery. Before resorting to this measure he had wished to give the rest treatment a thorough test, and as it was attended with no improvement, while from the first the improvement was marked under the use of the cautery, he thought that he was fully justified in attributing the cure to this particular method of treatment. There were, no doubt, cases in which the cautery had failed; but it seemed to him that in these instances the disease was probably more advanced. He inquired whether there was not some loss of sensibility, as well as motion in such cases? In conclusion, he said that his reason for bringing this subject before the Section was to induce surgeons to resort to the actual cautery at as early a period as possible.

Dr. Graeme M. Hammond read an elaborate paper on

ATHETOSIS, WITH REMARKS ON ITS PATHOLOGY.

In speaking of the treatment, he said that this affection, being dependent on certain irremediable organic changes in the brain, it was impossible ever to produce a cure. At the same time, there were certain measures which, in some instances at least, had been attended with marked relief, and sometimes had abolished all symptoms of the trouble for a considerable period. He referred in detail to four cases, one of which, reported by Gowers in 1876, had been treated with galvanism, and the remaining three of which had been treated with nerve-stretching. The most interesting of these was the original case of Dr. William A. Hammond, upon which his description of the disease which is mainly characterized by an inability to retain the fingers and toes in any position in which they may be placed, and by their continual motion), published in 1871, was based. This patient was also a confirmed epileptic. In 1882 Dr. G. M. Hammond stretched the median nerve very forcibly; after which both the epilepsy and athetosis disappeared for three months. At the end of five months, however, they were as bad as ever. At the time of the operation the nerve was in an apparently perfectly healthy condition. In 1884 the same operation was repeated, and the nerve still appeared normal. After this the patient remained well for about four months, but in eight months was again as bad as ever.

In 1885 the operation was again repeated, and this time the nerve appeared to have lost its healthy character, and, after the stretching, instead of promptly rebounding to its position, it hung in a loop outside of the wound. The result of the operation, however, has been more satisfactory than either of the others. A year and four months have now elapsed since it was performed, and there has been no return whatever of the athetosis; the muscles of the hand, arm, and foot, all being perfectly under the control of the will. The patient, however, still has an occasional epileptic seizure (perhaps once a month), and he is the subject of that interesting feature sometimes characterizing epilepsy, double consciousness. This state of oblivion to former events sometimes lasts for four days at a time.

Dr. Hammond said that he believed that nerve-stretching yielded better results than electricity, or any other method of treatment in athetosis. He was unable to say precisely how stretching the median nerve of the arm affected the leg also; but such appeared to be the fact. Such a procedure could, of course, have no effect on the organic changes in the brain giving rise to the athetosis; but he thought that it might perhaps have some effect upon the corpus striatum. Dr. Dana had shown that stretching of the sciatic nerve actually stretched the spinal cord as high up as the cervical vertebræ.

Dr. Hammond was able to present the reports of nine autopsies, made by various neurological authorities, in cases in which athetosis had been present during life. In three of these there were well-marked lesions of the corpus striatum; in three, of the optic thalamus; in one or more, of both the corpus striatum and optic thalamus; and in two, of the cortex cerebri. He also referred to a number of authentic autopsies of cases of allied affections, in which the same portions of the brain were the

seat of organic disease. His conclusion was, that athetosis and allied affections are due to lesions of the corpus striatum, optic thalamus, and cortex cerebri, and of those parts alone.

Dr. Birdsall said that in order to show that athetosis and allied clonic movements are dependent alone on lesions of the gray matter of the brain, it is necessary to prove that the internal capsule is not at all affected in the autopsies referred to. Athetosis so frequently follows hemiplegia, and especially in children, that it seems reasonable to suppose that the motor fibres are affected in it.

Dr. Putzel mentioned two autopsies which he had seen, which bore upon the subject, and which went to confirm the position taken by the author of the paper. One was in a very marked case of chorea, of twenty years standing, and the autopsy revealed pronounced atrophy of the central convolutions, with descending degeneration down the cord. The other was in a case of pre-hemiplegic chorea. He was glad to find that the author of the paper had not treated athetosis as a distinct disease, but as an affection allied to chorea, hemichorea, etc.

Dr. Hammond explained that the greater number of the autopsis he had referred to were described with the greatest accuracy, many of them being accompanied with diagrams representing the seat of disease, and that in none of them were the motor fibres implicated in the slightest degree.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, October 5, 1886.

The President, C. L. Dana, M.D., in the Chair.

CASE OF CONGENITAL ABSENCE OF THE FACULTY OF COÖRDINATION.

Dr. G. M. Hammond presented a boy four years of age, brought to his clinic on account of inability to walk. He was born at full term; labor was natural. He appeared to be perfectly healthy at birth, but shortly afterward he became sick, and continued more or less ill for six months. The attending physician diagnosticated colic. Since recovery from this attack the patient has had no sickness. The special senses were normal. The patient understood as well as other children of his age. Perhaps he did not speak as plainly as he should, but two other children in the family, perfectly healthy, talked in the same manner. There was no history of syphilis. The patient was well formed; the muscles of the limbs were well developed for a child who did not walk; muscular reaction to both electric currents was normal; the reflexes were normal. The only apparent reason for his inability to walk was want of power to retain his equilibrium. He could crawl on his hands and knees perfectly well unless he attempted to go very fast, when he would fall, and he always fell toward the right. He could stand holding to a chair, and walk pretty well if held upright. There was also incoördination in the upper extremities. He widened his base in standing. Dr. Hammond had not decided whether there was congenital absence of sensory tract in the cord or cerebellar disease.

Dr. Julius Rudisch had seen two similar cases, both in girls, one about eight years old and the other about thirteen. The first was seen some years ago, was under observation but a short time, and his recollection of the case was indistinct, but he was impressed with what he took to be muscular weakness, not simply ataxia, but weakness in the back. The child if sustained could walk well; if not sustained, it would fall like the child presented by Dr. Hammond. The older patient could walk, but in a peculiar ataxic way, and in the position of marked lordosis. The legs were well developed, and for that reason he thought the trouble was in the muscles of the back. The cases were not, in his opinion, congenital locomotor ataxia.

Dr. N. E. Brill thought such cases were not uncommon, especially among idiots. The gait of the boy presented reminded him of the swaying motion of a cat sent Dr. Spitzka by Prof. Wilder. Other actions than walking were natural. Rumpf reported a similar case, and found a rudimentary cerebellum. Dr. Spitzka removed the cerebellum of this cat and found it natural. Dr. Brill thought we had to distinguish in these cases between locomotor ataxia and static ataxia. Dr. Hammond's case appeared to be one of static ataxia due to rudimentary cerebellum.

The President had found in his case books one in which a provisional diagnosis of infantile ataxia was recorded. The girl, about two years old, was well nourished, large; could not coördinate the hands or feet. In addition there were some forced movements; the head would suddenly plunge forward.

VESICO-GENITO POST-FEMORAL NEURALGIA AND NEURITIS.

Dr. Landon Carter Gray read a paper in which he described two cases, seen during the year, of a peculiar variety of neuralgia and neuritis that had not, so far as he had been able to ascertain, been hitherto described. The first patient was a man, aged forty, of good general health but marked lithæmic temperament, subject every summer to quasi-malarial attacks. Hitherto his neuralgia had been gastric or intestinal. He escaped his usual attack this year until July, when the temperature fell in one night 4.8° F., and on the second day following when getting out of bed, the patient felt a sharp tingling pain through the buttocks, perineum, scrotum, tip of the penis, and down the back of both thighs to somewhat above the knee. Some slight smarting was felt in urination. Toward the afternoon the pain began to lessen, but became worse again following a Turkish and Russian bath. The cutaneous pains became violent; the urination scalding. The bladder became paretic; the urine had to be forced into the urethra. For four days the temperature was from 100° in the morning to 102° or 103° in the afternoon, the neuralgic symptoms still existing.

The second case was that of a female, aged thirty-five, seen in consultation with Dr. Burge, September 6th. During the past two years the patient had had a good deal of sciatica, otherwise had had good health. In December last she was suddenly attacked with sharp pain in the buttocks, perineum, labia, and down the back part of the thighs to the knee. There was simultaneous retention of urine, requiring the catheter. Several weeks later, Dr. Burge saw the patient, and found tactile anæsthesia of the buttock, perineum, labia, and the back part of the thighs to just above the

knee. Dr. Gray saw the patient nine months after the onset of the trouble. She then had vesical anæsthesia, and voided urine without her knowledge. Over the area just mentioned, except the labia, which he was not allowed to examine, he found impairment of the tactile, temperature, and pain senses, but slightly less marked near the knee than above. There had never been any motor impairment.

These cases had a clinical interest, because a knowledge that such a neuralgia might occur would make us chary about diagnosticating a central affection, as we might well be inclined in the early stage, especially when there was vesical, motor, or sensory paralysis.

Dr. Rudisch asked whether an examination had been made for prostatitis, which caused symptoms in a degree like those described.

Dr. Gray said the area of distribution of the pain was not like that in prostatitis; besides, the second case occurred in a female.

Dr. W. H. Thomson referred to the case of a woman from the country, a locality said by her physician to be free from malaria. After a prolonged convalescence from an attack of pleurisy, she began to suffer severe pain in the anterior part of the left thigh, and from slight trouble with the bladder; the pains coming on certain days of the week, lasting one day and two nights. This continued five months, when she was free until the following fall. The medicine prescribed by Dr. Thomson had not prevented a return of the singular symptoms again the present fall. There was no indication of sciatica.

ON THE USES OF HYOSCYAMINE.

The President stated that there are two preparations of the drug, the crystalline and the amorphous. The former seems to be similar in property to the opiates, while the latter seems to have neurotic properties. He had heard that hyoscyamine was employed in the asylumns for the insane in New York, but not very successfully, whereas in the asylums of Pennsylvania its success had been marked. He had employed hyoscyamine in paralysis agitans, in chorea, and in a few cases as a hypnotic, and it had been employed as a hypnotic to a considerable extent in his service at the Bellevue Hospital. The number of cases of chorea in which he had used it was six; in three it was noted to have been of benefit, or caused very rapid or very marked improvement. One of the cases was marked, and had not yielded to other treatment. In three cases the results were doubtful. He had employed it in four cases of paralysis agitans; in two, he thought, with unquestionable benefit. In two it seemed to produce no benefit. On the whole, he thought that unless given at rather an early stage of paralysis agitans it did no good. The form employed in chorea and paralysis agitans was the crystalline, but he was not sure that the amorphous form would not be the better preparation in such cases. He thought we could get along perhaps as well without as with hyoscyamine.

Dr. B. Sach's experience with hyoscyamine had not been very extensive, but he had employed it in a few cases of paralysis agitans, acute mania, and the insomnia accompanying the neurasthenic condition. He had employed only the crystalline form. In contradistinction to what the President had said, that it was best to give it in the early stage of paralysis agitans, he remembered one case in which every other therapeutic agent had been tried without success, when hyoscyamine was administered in about one one-hundredth of a grain doses twice a day, with the effect of making the patient very much more comfortable, and of diminishing somewhat the annoying movements of the hand. In another chronic case it had been of no benefit. He had obtained no effect from the drug administered to allay the excitement of acute mania. It had also been disappointing in insomnia accompanying neurasthenia. It seemed to be of more value against insomnia from mental restlessness.

Dr. W. M. Lebzynsky said that about eight years ago it was quite fashionable to use hyoscyamine in asylum practice, and he had employed it in chronic mania, acute mania, and epileptic forms of insanity. First he used the amorphous, and later sulphate of hyoscyamine. It was claimed that the latter form was easier absorbed, and produced its effects in smaller doses. The sulphate was also preferred for hypodermatic use, in which manner he had employed it in one-sixtieth of a grain doses. To patients with recurring attacks of maniacal symptoms the drug was given a few days before an expected attack and continued until the attack was aborted.

In a state of exhaustion he would regard hyoscyamine as a dangerous drug to administer, but where there was no objection to its use on that ground he had known it to produce sleep where chloral and morphine had failed. Given to patients subject to epileptiform convulsions before menstruation it seemed to avert the attack. He had given it in small doses in two or three cases of chorea, and thought it produced some benefit.

Dr. L. C. Gray had been using hyoscyamine ever since it had been introduced to the profession, and he must say that for certain purposes there was no drug in the *Pharmacopœia* that he could not better afford to dispense with. The most convenient form was in tablets, each containing one one-hundredth of a grain. In some people hyoscyamine produces serious retention of urine. It might also produce serious results if given to persons whose general strength was below par. In an old gentleman with atheromatous arteries, hypertrophied and feeble heart, one one-hundredth of a grain of hyoscyamine caused a condition of collapse. He knew of one patient suffering from melancholia who was sent to Greenwood by hyoscyamine. He had given it in two cases of chorea, one being an exceedingly violent case, the child finally dying in a convulsion. To that patient he could never give a second dose of hyoscyamine because of the alarming prostration which a first dose would cause. In another case, in which the child had to be held in bed, the drug proved an effective means of restraint, but the child was always found prostrated to a marked degree the next day. In paralysis agitans it had been very useful, and came to be with him a routine treatment. He thought the reason why it had been of more benefit in his practice was that he combined with it some stimulant or tonic to prevent its depressing effect. He gave with it good food, one or two grains of quinine a day, sometimes alcoholic stimulants. He had satisfied himself that it was the hyoscyamine in this treatment that had a restraining effect upon the movements in paralysis agitans.

But it was especially in cases of mental trouble that hyoscyamine was of great benefit. In insanity with symptoms of hallucination, especially in the early stage before the patient could be taken to an asylum, hyoscyamine would do much toward restraining a patient, and, it would seem, aided in cutting short the disease. He was very careful to give no more of the drug than was absolutely necessary, and he combined it with bromide of potassium, which increased its effect. He had never seen hypnotic effect from hyoscyamine.

Dr. W. H. Thomson said that his experience with hyoscyamine almost from the beginning rather prejudiced him against it. One of the first cases in which he employed it was that of a judge troubled with insomnia. The next day he was unable to hold court, had bladder symptoms, etc. He found it useful in asthma with considerable dilatation of the right side of the heart, without bronchitis, but a congested state of the lungs. He had employed it in facial neuralgia, headaches, and various neurasthenic conditions, but had nothing definite to say about its effects. One patient with paralysis agitans was benefited by it among many with whom it was a failure.

Dr. Kellogg had used hyoscyamine in cases of mental excitement. It had not proven the sedative he had supposed it would, but it controlled the muscular excitement. He had failed to get any hypnotic effect from it. He had not been favorably impressed with its after-effects in acute mania.

Dr. H. S. Hinkley had found it serviceable in allaying maniacal excitement. Dr. Waitzfelde, of the Pennsylvania Hospital for the Insane, had used bromide of hyoscyamine, and spoke very highly of it.

Dr. Richards had given five to seven drops of a one per cent. solution in several cases of insomnia without effect.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, October 18, 1886.

The President, Charles A. Leale, M.D., in the Chair.

The President, Dr. Leale, on opening the meeting, made the following remarks:

Our season for professional activity has returned, and the stern realities are before us of busy metropolitan lives. We may congratulate ourselves that much has been done, but must confess that very much has been left undone, and that even the younger generation is quickly passing away. Let us, therefore, fully equip ourselves for our coming duties, ever with the remembrance that we are in the midst of the most vigorous age of the world's history.

Since we last met, one of our most prominent and beloved associates has departed full of glory, after a life of ceaseless toil and beneficence. I refer to Dr. Frank Hastings Hamilton, who so recently addressed us with his usual eloquence. Although severed from us in body he has given us, in his spirit, a most brilliant example worthy of our highest emulation.

THE DEATH OF DR. FRANK H. HAMILTON.

Dr. John Shrady offered the following resolutions, which were unanimously adopted.

Whereas, It has pleased the Almighty Disposer of Events to remove from the sphere of his usefulness our much respected co-worker, Frank Hastings Hamilton, M.D., LL.D., and

Whereas, The New York County Medical Association desires to express a sense of its bereavement, in common with the many organizations with which he was connected, therefore be it

Resolved, That the fulness of his days has been a record of a well-spent life; and that his work has adorned the surgical annals of America, borne his name beyond the borders of a hemisphere, and added to the solid contributions of medical literature.

Resolved, That as a scholar in his chosen science he has won a place among the worthies of all tongues; and that he has conscientiously weighed all his statements, and given to the world the results of a ripe experience and a most painstaking discrimination.

Resolved, That his professional life has been gauged by the strictest regard for the right—that his loyalty, ever unimpeached, was never expended upon the unworthy, nor his unswerving rectitude ever been challenged even by the captious multitude.

Resolved, That the memory of his many virtues will ever linger with us, and that we tender to his family our sympathies; assuring them that his humanity, his sterling merit, and his valued counsels have not been unappreciated by those who had the honor of association with him.

Dr. Frederic S. Dennis read a paper on

SOME POINTS OF SPECIAL INTEREST IN THE TREATMENT OF COMPOUND FRACTURES, INCLUDING A REPORT OF OVER FIVE HUNDRED CONSECUTIVE CASES,

which will appear in full in The Medical News.

Dr. J. W. S. Gouley said that he did not believe there was a surgeon present who would not most heartily endorse all that had been said. He would, however, say a word in regard to one or two of the points referred to. First, in regard to meningeal hemorrhage, he was fully in accord with the author of the paper as to the propriety of performing explorative trephination. The idea was not new, but it was sound. Whenever there was a doubt as to the existence of such hemorrhage, the patient should have the benefit of this doubt; and he would, like Dr. Dennis, remove a sufficient quantity of bone to enable him to reach the wounded artery and secure it. It was a much better plan, he believed, than to perform the graver operation of tying the carotid artery.

As to malignant disease, he had observed not a few such cases. One in particular which now occurred to him was a sarcoma of the instep, which resulted from injury to the bones of the tarsus. He performed amputation at the ankle-joint, and the patient made a good recovery. Excision of portions of the long bones he had performed with much success for a long time. In one case he removed six inches of the tibia, and reproduction of the bone followed. In the case of a soldier during the late war, who received a gunshot injury of the tibia and fibula, he removed four inches of bone, and put on a plaster-of-Paris dressing. In regard to plaster of Paris, he claimed to have introduced it into the United States, having first applied it during the early part of the war (in the spring of 1861). He had recently heard of the soldier referred to, through a pension examining officer,

and learned that he was alive and well. In these cases he made it a point to remove all the damaged portions of bone.

Dr. F. Van Vleet made some

REMARKS ON ABSCESS OF THE BRAIN, WITH ILLUSTRATIVE CASE.

The patient was a child who had for some time been affected with otitis media (for which no treatment was employed), and was attacked with measles in August last. The otitis attracted no attention until the measles developed, when it became greatly aggravated; the discharge being very profuse and very foul. The child made a good recovery from the measles, but the discharge from the ear still continued. It appeared to be in quite good health until the 22d of September, when it complained of pain in the ear at night, and became fretful. There was some vomiting, and then it suddenly died. At the autopsy the auditory canal was found full of fetid and greenish pus. All the organs were normal, except the brain. In the dura mater there was a circumscribed area, which was thickened and covered with exudation; while in the left hemisphere of the cerebellum there was an abscess containing about one ounce of pus.

The point of interest in this case is, that if the ear-trouble had been properly attended to in the beginning, the abscess would probably not have developed, and the child's life would not have thus been needlessly sacrificed. (The specimen was presented.)

CYSTIC TUMOR OF THE LABIUM MAJUS.

Dr. Gouley exhibited a cystic tumor which, he said, he had recently removed from the left labium majus of a woman about thirty years of age. It had been about fifteen years since she first noticed its appearance, though for a long time it remained quite small. Once it was punctured, and once or twice it opened spontaneously, discharging a brownish fluid. Only lately it had so increased in size as to distend the whole labium. It had the characters of what is known as hydrocele of the labium majus, and contained dark mucoid fluid, which led him to infer that there had been hemorrhage into it. The mucous surface presented a trabecular appearance, and he believed that the tumor was an enlarged and dropsical vulvo-vaginal gland; an opinion in which Professor Isaac E. Taylor coincided. It was pyriform in shape, and the lower part extended for a considerable distance underneath the ramus of the ischium. In its extraction he had to divide several branches of the pubic artery, and in consequence of this he decided not to close the wound, as he had at first intended, but to leave it open and allow it to heal by granulation. The operation was a somewhat tedious and difficult one, but the patient did perfectly well afterward.

Dr. A. P. Dudley said that he had met with a number of such cases at the Woman's Hospital. In many there was suppuration, although there was no history of gonorrhœa. In a great many cases, however, there was a history of vulvar inflammation, and gonorrhœa was frequently the cause of the trouble. If any portion of the sac were allowed to remain, it generally filled up again in case the wound were sewed up; and he believed it was, therefore, better to allow the wound to heal by granulation, as Dr. Gouley had done. In one case which he had treated, the cyst filled up three times, as a result of excessive sexual intercourse. In this instance the duct was stopped up; but in most cases the duct presented an irritated appearance.

Dr. Gouley said that in his case the entire cyst was carefully dissected out. There was nothing left, so that any refilling was out of the question. He prided himself on the fact that his knife never once entered the cyst, until after it had burst spontaneously from the pressure upon it. Then he laid it widely open.

Dr. Dudley said he would heartily congratulate Dr. Gouly on the success of his operation.

NEW YORK STATE MEDICAL ASSOCIATION.

Fifth District Branch.

Second Annual Meeting, held at Brooklyn, October 12, 1886.

Morning Session.

After the transaction of some preliminary business,

THE PRESIDENT'S ADDRESS

was delivered by Dr. J. G. Porteous, of Poughkeepsie. In it he congratulated the branch and the parent Association on the flourishing condition of the organization, and paid a tribute to the illustrious dead of the year, Drs. Austin Flint, Frank H. Hamilton, and Desault Guernsey, the latter being President of the Fifth District Branch at the time of his decease.

Dr. Joseph C. Hutchison, of Brooklyn, then read a *Biographical Notice of the late Frank H. Hamilton, M.D., LL.D.*

Dr. Avery Seguin, of Brooklyn, read a paper on *Some Recent Impressions of Medicine in England.*

Afternoon Session.

Dr. H. A. Pooler, of Goshen, Orange County, read a paper on

THE MILK SUPPLY OF LARGE CITIES, AND THE IMPROPER MODE IN WHICH IT IS CONDUCTED.

Having spoken at considerable length of good cows' milk, and in what respects it resembles and differs from human milk, he referred to the abnormal conditions of milk. There is only one period, he said, at which a healthy cow will secrete unwholesome milk, and that is after parturition, when it contains colostrum. Such milk taken by the young or by invalids may produce very harmful results. It is certain that the milk will not be entirely free from colostrum corpuscles ten days after the birth of the calf, but the farmer, not knowing the pathological condition of the milk at such a period, or at least, the length of time that it is affected, usually saves the sixth milking, which occurs only three days after parturition. The milk of the entire dairy may thus be contaminated by the diffusion of the colostrum through it.

In speaking of the adulterations of milk, he said that many foreign substances have been added to it, but by far the most common forms of adulteration are the removal of fat and dilution with water. Pure milk furnishes an indication of the amount of fat required by the human being in the large proportion of butter to

the other solid ingredients which it contains. Besides performing certain purely mechanical offices, fat is essentially concerned in many of the chemical and vital processes of the body. As a heat producer fat stands preëminent, and it is mainly from the fat stored up in the body that sustenance is derived when the supply of food is temporarily cut off or the power of digestion is impaired by sickness. Furthermore, it is believed that nature has especially adapted butter fat to the digestion of infants. Altogether, therefore, it is essential in large quantities to the proper nutrition of young children.

Dr. Pooler then quoted from the report by Dr. C. F. Chandler (made with the assistance of C. E. Munsell, Ph.B.), published in the Second Annual Report of the New York State Board of Health (1881, 1882), as follows: "While a large proportion of the milk sold has been but moderately watered and skimmed, and is still above the standard of the poorest milk (two and a half per cent. of fat), much of the milk has been *extended* and skimmed far below this standard. So openly are these frauds practised that 'creameries' have been established in many localities, the names and locations of seventy-three such establishments being known to the writer; of which sixty-three are known to send skimmed milk to New York City, all of which is sold as whole milk on its arrival."

Later reports of C. E. Munsell, Ph.B., showed, from analysis, that this skimming amounted to from about twenty-nine to seventy-eight per cent. of the fat. Now, it can readily be seen that the mother receives this milk into her home as whole, pure milk, and dilutes it one-half to three-fourths. What then does the child have to live upon, when nature says that infants must have 3.38 per cent. of milk fat for their sustenance and development?

Up to 1883 there was no law in the State prohibiting the shipping and sale of skimmed milk; but the passage of such a law was then secured, and milk inspectors were placed upon the milk trains. Dr. Pooler told the Judiciary Committee of the Legislature that if they would pass the law, he would guarantee to reduce the death-rate of young children in the city of New York at least three thousand, and he was able to keep his promise. In 1879 the mortality in children under five years, was 12,777, or about fifty per cent. of the births of that year. This was before the milk adulterators carried on their work so extensively as afterward. In 1880, however, the mortality in this class increased to 14,650, and while from 1878 to 1879 it increased only 300, the increase in the number of deaths from 1879 to 1880 was 2000. The mortality in 1881 was 17,737, an increase of 3000 over 1880, and about seventy-five per cent. of the births. In 1882 the number of deaths was about the same as in 1881; but if it had not been for the work that was done in the autumn of 1882 the mortality would have reached nearly 20,000; a close watch being then kept on the dealers. In the winter of 1882 and 1883 the skimmed-milk bill was passed and enforced, and, notwithstanding many discouraging circumstances, the mortality was reduced from 17,737 in 1881, and 17,520 in 1882, to 13,856 in 1883, a reduction of some 4000.

But, unfortunately, in 1884 the good work was interfered with by the politicians. Up to that time the labor performed had been almost all voluntary services. An appropriation was, therefore, asked from the Legislature; but while this was granted, a Dairy Commission was also appointed to take charge of it, and this commission was manipulated so as to form a part of the great party "machine." There were other political changes also, and the withdrawal of Professor Chandler from the head of the Metropolitan Health Department was an irreparable loss. Hence the mortality in children under five years increased from 13,865 in 1883, to 15,272 in 1884, an increase of nearly 2000. Dr. Edson, of New York, and Dr. Bartley, of Brooklyn, had, however, done all in their power, with the means at their command, to keep the evil in check, though the small force available for this service was quite inadequate to the demands upon them.

Dr. Pooler spoke next of the adulteration of milk through the cow, by feed and otherwise. The refuse of about nine thousand distilleries, breweries, and malt-houses, in this country, is nearly all sold to feed the cows that produce the milk upon which the infantile portion of the population principally subsist. The natural food of the cow is grass, either green or dried, and when she is fed exclusively upon it, her fresh milk is generally neutral in reaction. On the contrary, the milk of cows fed either wholly or in part upon food other than the natural, is almost invariably acid. Dr. Mayer, of Berlin, found the following results: "Of cows fed with brewers' grains, red potatoes, rye, bran, and wild hay, in five instances the milk was slightly sour, in one very sour.

"Of forty cows fed with potato mash, barley husks, and clover, and barley straw, in ten examined the milk was sour, in three very sour.

"From five cows fed by a cow-feeder on lukewarm bran mash and hay, in four the fresh milk was quite neutral; in one it was decidedly alkaline."

All physicians know how easily affected infants are by acid milk, and Dr. J. Lewis Smith, in his work on diseases of children, says that milk used for children should always be alkaline. If it is acid, as shown by the proper test, it should be rejected. Dr. Hassal, in his standard work on food and its adulterations, says: "As is well known, a very considerable number of the cows which supply London with milk are kept in various confined and unhealthy places in the metropolis. Such cows are seldom turned out to grass; the system adopted being altogether unnatural and artificial. Brewers' grains and distillers' mash form much of their food. These stimulate the animals unnaturally, and under this stimulus large quantities of milk of inferior quality are secreted. The cow quickly becomes worn out and diseased in consequence."

It has been shown also, by experiment, that brewers' grains afford a most favorable soil for the development of the microbe of anthrax, and in 1879 an attack of this disease occurred in England, in a district which had been previously free from it, where it was found upon investigation, that all of the cattle infected had been fed upon grains from one particular brewery. That disease may be transmitted from the lower animals to man, is an undoubted fact; and hence it is of special importance that the cow should be kept in a healthy condition.

The facts show that the action of brewers' grains is to impoverish the milk in its most essential constituents, and largely increase its most objectionable ingredient,

casein. When the fat is not equal to the normal amount, the milk forms a hard curd in its coagulation, which is known to the skimmed-milk cheese-makers as "hickory curd;" the formation of this being directly due to the abstraction of fat. It is the cheapness of the brewers' grains, together with the large amount of milk which the cows give when fed upon them, that induces farmers to purchase this food. The proper food, wheat middlings, or wheat bran, costs twenty dollars a ton, and will yield less milk, though of far better quality, than a ton of brewers' grain, which costs only from four to six dollars.

Dr. Pooler also spoke of the evils resulting from the transportation of milk from long distances.

Dr. Alfred Ludlow Carroll, of New Brighton, Staten Island, read a paper on

LEPTO-MENINGITIS INFANTUM.

The clinical history and pathology of acute hydrocephalus, he said, are involved in considerable obscurity; the symptomatology varying, on the one hand, in cases having a similar morbid origin, or, on the other hand, closely corresponding in instances due to different kinds of lesion. It seems to be the general opinion that recovery from a meningeal attack in childhood precludes the idea of tubercular deposit; but whether non-natal forms of acute hydrocephalus (not secondary to disease elsewhere) are always dependent on inflammation of the pia, or whether there may be other less serious pathogenetic factors, is a question still open to discussion.

Huguenin, in Ziemssen's *Encyclopædia*, affirms that cerebral hyperæmia is the exciting cause in all instances save those occurring in marasmic conditions supervening upon chronic digestive disorders; and in these, forced to admit an anæmic state of the brain, he assumes "partly a hydrocephalus *ex vacuo*, in consequence of the diminution of the brain, partly the result of the long-continued weakness of the heart's action and slowness of the circulation, with greater emptiness of the arteries than of the veins." In the former class of cases he reiterates that we are forced to assume a true inflammatory process as the cause of the effusion into the ventricles, but at the same time states that it is impossible to say, during life, when the hyperæmia ceases and the inflammation begins. But in his description of the pathological anatomy, it is admitted that the pia "contains a moderate amount of blood, or is anæmic; no traces of arterial hyperæmia can be found. We are forced to assume that it disappeared at the moment of death."

J. Lewis Smith, describing tubercular and spinal meningitis conjointly, speaks of the "inflammatory action" as usually confined to the pia mater, and includes purulent meningitis of the convexity, apparently, as a more intense form; adding that serous distention of the lateral ventricles is a common result in either variety of the disease. Vogel, on the contrary, asserts that acute hydrocephalus never occurs in combination with simple meningitis, but invariably supervenes upon tuberculous meningitis.

Other authors either deny a non-tubercular origin of acute hydrops of the ventricles, or, at all events, ignore the affection which Huguenin endeavors to differentiate; an affection of which well-defined examples are not infrequently encountered, but wherein we are asked to "assume" an ante-mortem hyperæmia which suddenly changes to a post-mortem anæmia, and an inflammatory process which does not leave behind it the ordinary traces of inflammation. As regards the first of these assumed phenomena, all pathological investigations go to show that we are much more likely to be misled by a post-mortem fulness of the intracranial vessels where previous anæmia has existed than to fall into the opposite error.

On the other hand, although the mere so-called determination of blood, caused by local irritation, may speedily pass away, the evidences of inflammation are usually regarded as persistent and unmistakable after death. And these evidences lie, not in simple fulness of the larger vessels, but in the crowding of the smaller ramifications with coherent corpuscles, even in an early stage of the inflammatory process; whilst in a more advanced condition exudation products are discoverable. In inflammation of the pia of undoubted character, this membrane is lacerated and infiltrated; the arachnoid thickened and opaque; fibrinous exudation being marked. In the disease described by Huguenin there is no effusion between the dura and pia, nor in the meshes of the latter, the outer surface of which, he says, is usually remarkably dry; there is exudation at the base; the ependyma of the ventricles show no change, macroscopic or microscopic. The only significant morbid appearance is a turgescence of the choroid plexuses, sometimes with punctiform extravasations. In brief, we have to deal with a disorder of which the pathological features are, more or less rapid accumulation of fluid in the ventricles, with a specified morbid condition of the choroid plexuses; its clinical manifestations (by no means uniform) being convulsions, unconsciousness, paralytic symptoms, and disturbances in the tract of the pneumogastric and splanchnic nerves.

The known causes of serous effusions are usually found in anæmic conditions, or in mechanical impediment to the return of venous blood. Within the cranium such stagnation is especially likely to concur with arterial anæmia, since, even allowing for the balance ordinarily maintained by the ebb and flow of the cerebro-spinal fluid, atmospheric pressure tends to retard the egress of venous blood. It has long been known that in animals bled to death the intracranial vessels may retain their contents after all the rest of the system is drained. Meningeal venous turgescence of this kind, "ex vacuo," is familiar as arising from atrophy of the brain, and in other conditions associated with arterial anæmia. Furthermore, the pia gradually diminished in vascularity from the convexity toward the base, until, at the crura and pons, it is almost devoid of vessels. Finally, we have the authority of Nothnagel for doubting whether active hyperæmias can limit themselves to circumscribed regions of the brain; whilst localized ischæmia about the nasal ganglia is a more probable event, originating in arterial spasm, reflected irritation, or insufficient cardiac action.

Having devoted considerable time to the phenomena and mechanism of effusion into the ventricles, Dr. Carroll went on to say that, as to the clinical aspects of acute hydrocephalus, it is well known that convulsions are oftener due to cerebral anæmia, rapidly induced, than to any mechanical alterations of pressure upon the brain. Epilepsy is commonly conceded to be of anæmic origin, and Moxon has observed that in this disease the

convulsive seizure is often preceded by a momentary arrest of the pulse. Niemeyer affirms that the so-called symptoms of pressure in apoplexy, tumors, the various forms of hydrocephalus, and other diseases encroaching on the intracranial space, are not immediately referable to the pressure on the brain-substance, but to the consequent anæmia; and he further points out the false interpretation usually given to increased pulsation of the carotids, which he defines as an essential consequence of cerebral anæmia.

Another common mistake is to regard the vascular appearance of the external surface of the head and face as indicative of the intracranial condition. In states of general anæmia, facial pallor and cerebral anæmia are twin results of the same cause; but when the blood is pumped up toward the head in due amount, a localized ischæmia within the skull is apt to direct an increased flow into the external carotid and those branches of the internal carotid which arise before its entrance into the cranial cavity.

It is extremely difficult to discriminate during life between idiopathic lepto-meningitis, as it may be called, and other meningeal affections of childhood. In early infancy and after exhausting diseases, the secondary "hydrocephalus ex-vacuo" is to be considered rather as a mode of dying from other complaints, and the past history of the case (afterward one of protracted diarrhœa) will afford a clew to its nature. True meningitis, commonly affecting the lateral part of the convexity, arises by traumatism, or extension from adjacent foci, as in internal otitis, caries of the cranial bones, mastoid inflammation, phlebitis sinuum, etc., and although in most examples its diagnosis may be made with some confidence, it is well to know that not a few cases occur in which the symptoms simulate those of acute hydrocephalus.

Having briefly referred to his extensive post-mortem experience, which, he said, had induced him to believe that tubercular meningitis seldom, if ever, occurs except as a part of a more generalized deposit. Dr. Carroll summed up his argument by saying that he was convinced that a malady quite frequently occurring in childhood, and often erroneously reported as tubercular meningitis, characterized by serous distention of the ventricles, and variously described under the names of "simple meningitis," "lepto-meningitis," and "acute hydrocephalus," but by most writers ascribed to hyperæmia and inflammation, is, on the contrary, essentially due to cerebral anæmia; that the principal and most significant morbid factor is a varicosity of the choroid plexuses, sometimes extending to the plexuses of the fourth ventricle, and aggravating the arterial anæmia which gave it birth.

In conclusion, he submitted a microscopic preparation exhibiting the condition of venous and capillary stasis met with in these cases.

NEWS ITEMS.

TORONTO.

(From an Occasional Correspondent.)

The American Public Health Association.—The fourteenth meeting of the American Public Health Association, which was this year, for the first time, held outside of the United States, was one of the most successful in the history of the Association. For the past three years several Canadian medical officers have taken active interest in it, and have given valuable co-operation. It was in response to most urgent solicitation that the body met in Toronto from October 4th to 8th.

The work outlined was carried forward in a business way, and many valuable papers and discussions were presented. There was less of speculation and generalization than usual, and more of experience, not only telling what ought to be done but how to do it. The President, Dr. Henry P. Walcott, of Boston, had for his subject, "The Claims of Preventive Medicine and the Expectations we were Justified in Entertaining as to its Future." His first words were those of caution. He adduced the cessation of the plague, not only in England but throughout Europe, as an illustration of the fact that we cannot always attribute all the good things that happen to this or that sanitary measure. There is enough to do, he said, in the directions where both science and experience have arrived at some definite conclusions, but advance in any quarter must necessarily be slow, made under the guidance of systematic experiments and observations controlled by scientific methods, and not in the pursuit of the speculations of theorizers. The principal object of scientific inquiry in preventive medicine during the past year has been, he said, as in the preceding year, the study of the infectious diseases and the microörganisms associated with them. He went on to review what has been done and what is being done in the study of such diseases as cholera, smallpox, yellow fever, scarlet fever, rabies, and trichinosis. All these were of too much importance to be neglected by the guardians of the public health. To meet the present needs of sanitary science, the President advocated the undertaking by the general Government of scientific investigations of diseases which are so general in their distribution that the whole country is affected by them, or of such a character that the satisfactory inquiry into them would involve expenditures too great for the meagre appropriations of State and local boards of health. Some of the investigations carried on under the direction of the National Board of Health of the United States were of the highest scientific merit, and had an acknowledged authority everywhere. The public burden from the victims of the misuse of alcohol is becoming each day greater and more intolerable.

A portion of a day was devoted to papers and discussions as to the sewage problem for Toronto. Its chief general value consisted in the facts brought out as to the need of a close study of currents, eddies, and all shore changes when seeking an outfall for a sewer, and especially if somewhere from the same body of water the city water-supply is derived. The opinions of such engineers as McAlpin, Galbreath, Waring, and Jordan were drawn out, and the debate was engaged in by physicians, by the Mayor, and by some citizens.

A paper on "The Destruction of Night Soil and Garbage by Fire," and another on "Sanitation in Street Paving," as presented by Dr. Reeve for Dr. Baird, of Wheeling, were of great interest because they gave definite plans and details as to both, illustrated their practical operation by examples, and showed the economy of the

methods. So much interest was elicited that it is probable that several city officers will visit Wheeling to see the workings of the process. The following brief abstract will give some idea of the plan, which embraces the use of a Smith gas furnace for the heating of steel slabs preparatory to being rolled into nail plate. This furnace is much larger than the boiling furnace, and capable of generating a more intense heat than any furnace known. The result was as follows: A barrel of ordinary garbage or slop was burned in four minutes, a barrel of butchers' offal (bones and animal matter) was burned in seven minutes, a barrel of fluid night-soil, thrown into the furnace with buckets, was almost instantly evaporated, and a barrel of solid feces was burned in fifteen minutes.

The solid and impervious pavement was described with equal interest and detail.

Much interest centred about the discussion of the best methods of internotification of disease, as well as in the illustration by examples of its indispensable importance. On the one hand, our Canadian brethern had much to tell us as to their experience in quarantine and with smallpox, while Dr. Holt, of New Orleans, fresh from the contest with the Biloxi authorities, showed that the days of repression and concealment of facts have passed, and that the public health and the check of epidemics depends upon that *confidence* which will lead each board to give full and early notice to all adjacent boards as to cases of yellow fever, cholera, typhus, or other threatened invasion. Several city officers took part in the discussion. It was shown that mercantile and commercial interests cannot be ultimately injured if health authorities are manly and courageous, and deal promptly with the facts under proper sanitary regulation. This is well illustrated by the fact that the entire tendency of good administration is to shorten time of quarantine whether at sea or on land.

No less interesting were the details given by Dr. Thornton, the Health Officer of Memphis, and Col. Haddon, its Mayor, as to "Six Years' Sanitary Work in Memphis." Facts were detailed in a lucid way, tested statistics and death-rates were presented, the errors of their sewer system, its corrections and its value fairly exhibited. There can be no doubt that Memphis can be pointed to as a city which owes its present prosperity chiefly to the vigorous activity of its citizens in sanitary construction and administration.

The paper of Dr. Bell, of New York, on "The Disinfection of Rags," accumulated all possible references which would go to show that either rags or clothing had caused the spread of communicable diseases. It was soon evident that a gauntlet had been thrown down, and health officers from Boston, New York, New Orleans, etc., were on their feet, and efforts were made to suppress the report on the ground that it was partisan in its character. Boston officers denounced the plea for disinfection of foreign rags as special, and denied that any case of infection from rags could be cited from Massachusetts, which alone received one-third of all the rags imported. The debate lasted until after midnight, and while not settling a vexed question, it will put on record many important facts and statements.

The report of the Committee on Disinfectants dealt chiefly with the best apparatus for the use of steam in disinfection. It still inclines to this, nothwithstanding the graphic delineation of the quarantine use of corrosive sublimate by Dr. Holt. It seemed a little odd to some northern health officers that the enormous and novel use of this agent in ship disinfection was emphasized, when at Boston, for instance, it had been used extensively before it was thought of in New Orleans.

In the line of microörganisms, the only important paper was that of Dr. Salmon, of Washington, who, in a paper on "Recent Progress in the Investigation of Hog Cholera," gave the details of many interesting experiments going to determine the specific character of the microphyte of this disease. He also seems to have shown that when the culture fluid of this microbe is subjected to sufficient heat to destroy it, the remaining fluid can be used as a prophylactic and protects against the disease.

A paper on "The Best Methods and Apparatus for Teaching Hygiene in the Public Schools," by Dr. Yeomans, of Ontario, insisted upon specific instruction in hygiene as a part of school discipline, and as distinct from physiology and anatomy. He showed the value of experiments in physics bearing on the subject, and gave many valuable hints.

The Association was favored with the presence of Dr. Russell, the able Health Officer of Glasgow. He read a paper prepared as a result of his attendance. He began by saying that the country districts of Scotland are as benighted about sanitation as are those parts of America. For its eight cities he claimed some valuable advances. There are none of the political complications we have here. He criticised our tendency to be satisfied with a death-rate no larger than that of older countries, and suggested that even a death-rate of fifteen per thousand should not satisfy us in such a country as this, and especially if typhoid fever, diphtheria, scarlet fever, etc., made up much of the record. In his terse and ready style, with precision of statement, he occupied the attention of the Association for a half-hour, and was voted the honor of being its first foreign honorary member.

In a paper on "The Significance of the Decomposition of Albuminoid Substances," Dr. Bryce made the point that we should not judge of the fact or condition of nuisances by odor, but should base our opinion and decision upon their bacterial manifestations.

A valuable paper on "Alcohol" was furnished by Prof. S. E. Chaillé. In view of the absence of its author, and the pressure for time it was read only by title. Our examination of it, however, satisfies us that it will be a very valuable addition to the literature of the subject. It disputes some ordinary conclusions as to the abuse of alcohol being on the increase, and shows that intelligence is confining it more to classes. It takes very strong sanitary grounds, however, against the present system of licensing, and declares that local option is both a social and sanitary necessity.

Other papers of importance might be referred to, but what we have already said will show the type of the meeting, its great value, and its sensible advance. Surgeon Sternberg, U.S.A., was elected President for the ensuing year, and the other offices were worthily filled. The twelfth volume of reports and papers when published will be a very valuable addition to the excellent volumes which have preceded it.

Clinical Society of Maryland.—At a meeting of the Clinical Society of Maryland, held October 1st, the following officers were elected to serve for the ensuing year:

President.—Dr. Randolph Winslow.
Vice-President.—Dr. S. T. Earle.
Recording Secretary.—Dr. A. C. Abbott.
Corresponding Secretary.—Dr. W. J. Jones.
Treasurer.—Dr. R. W. Johnston.
Executive Committee.—Drs. J. W. Chambers, H. Harlan, and B. B. Browne.

The reports of officers and committees showed a very healthy condition of the Society, the treasury having an ample surplus for current expenses, and the membership of the Society having increased to 190 active members. The Society meets on the first and third Fridays of each month at 8.30 P.M., in the hall of the Medical and Chirurgical Faculty of Maryland, northwest corner of St. Paul and Saratoga Streets.

The Johns Hopkins Endowment.—*The Baltimore Sun*, of October 7th, publishes a statement of the financial resources of the Johns Hopkins University. For the year ending August 31, 1886, the income was $225,922.38. The total expenses for the year were $185,020.96; leaving a balance of $40,901.42. Among the receipts $17,804.12 were credited to tuition. Among the expenses $126,828.26 are charged to salaries. The University owns 15,057 shares of B. & O. Railroad stocks, valued at $2,195,400. The remainder of its endowment fund is invested in bonds, stocks, mortgages, real estate, buildings, apparatus, etc. The total endowment is $4,359,350.43. In addition the University owns the Clifton estate of 280 acres, which is valued at $2000 per acre, making the property of the University worth to-day about $5,000,000.

Hudson River State Hospital.—The managers of the Hudson River State Hospital, Poughkeepsie, N. Y., have established a training school for the instruction of those who wish to make a specialty of nursing the insane, either in private houses or public institutions.

Graduates of general hospital training schools will be admitted to the school for the period of one year. Upon passing a satisfactory examination at the close of the twelve months, they will receive diplomas bearing the seal of the hospital and the signatures of the President of the Board of Managers, the Medical Staff, and the Principal of the Training School. They will be paid at the rate of twenty dollars per month during the first six months, and twenty-five dollars per month for the second six months. For those who remain in the service of the hospital after the completion of this term, special rates of remuneration will be arranged.

Women, between the ages of twenty and thirty, who are not graduates of general hospital training schools, will be admitted to the school, and receive a course of instruction covering a period of two years. After a satisfactory examination at the conclusion of this course they will be granted certificates of graduation bearing similar signatures to the diplomas. They will receive from ten to seventeen dollars per month, rated according to proficiency and time and value of service. Special rates will be made for hospital service after graduation.

In connection with the hospital there is a training school for men who are between twenty and thirty years of age. The course of instruction covers two years, at the end of which certificates of graduation are bestowed upon evidence of competency. The men are paid at rates ranging from sixteen to twenty-two dollars per month, according to proficiency and time and value of service. Special rates are arranged with those who remain at the hospital after graduation.

All the pupils and nurses are allowed board, lodging, washing, and medical care if required, free of charge.

Sir Andrew Clarke declares that one-half of the population of London is permanently ill. His definition of health is: That state in which the body is not consciously present to us; that state in which work is easy, and duty not a great trial; the state in which it is a joy to see, to think, to feel, and to be.

Criterion of Good Standing in Illinois Medical Schools.—The following resolution has been adopted by the Illinois State Board of Health:

Whereas, The continuous graduation of forty-five per cent. of the total number of matriculates of a medical college—due allowance being made for the average annual loss—must be accepted as *prima facie* evidence that practically every candidate is graduated without regard to competency or qualification, therefore, be it

Resolved, That no medical college be recognized as in good standing within the meaning and intent of the Act to Regulate the Practice of Medicine in the State of Illinois, the aggregate graduates of which college amount to forty-five per cent. of its aggregate matriculates during the period of five years ending with any session subsequent to the session of 1885–86.

The Pasteur Institute.—The Paris Municipal Council, after a heated discussion, has voted to extend the concession of the site for the proposed Pasteur Institute, in Rue Vauquelin, from thirty to ninety-nine years.

Medical Societies in New York.—New York boasts of thirty-one different medical societies, all of which resume work during the present month. These societies meet monthly and semi-monthly. On an average there are seven or eight meetings every week in the city.

Excision of a Cerebral Tumor.—Another case of excision of a cerebral tumor has terminated successfully. The patient was a man who had been absolutely hemiplegic for a month, and had passed into a semi-comatose condition. Before these symptoms developed, he had endured terrible pain in the head, and had suffered from fits. On Thursday, September 23, Mr. Victor Horsley trephined over the motor region of the right hemisphere, and, after enlarging the aperture made by the trephine, succeeded in removing a large tumor from the brain; the tumor weighed four and a half ounces, was three inches long, two and a half inches broad, and two inches deep. On the day after the operation the patient was perfectly rational, and even amusing in his conversation, and said that he was quite free from pain. On September 27 the wound was entirely healed, and the man had recovered some power in his leg. This is

the fourth case in which Mr. Horsley has operated successfully on the motor area of the cortex of the brain; the three earlier cases were carefully described to the Section of Surgery at the meeting of the Association at Brighton, and the full text of his paper will be shortly published. His results constitute a real triumph for scientific surgery. Not only have the facts upon which the diagnosis of the seat of the lesion in these cases rests been discovered by experiments on lower animals, but the details of treatment have also been worked out in the course of these experiments. The complete success of the surgical method followed is demonstrated by the fact that, in two of the cases, the wound healed in four days; that, in a third, it had healed in a week; and that, in the case which was in this respect the least successful, the whole of the wound, with the exception of one-sixth, healed by first intention. A more complete proof of the validity of well-directed experiments on animals, it would be difficult to imagine; and it is no wonder that the professional agitators, who are beginning to find their supposed grounds of objection one by one swept away, pursue Mr. Horsley with a bitterness which increases as it becomes less reasonable.

A New Medical Society.—The physicians of Brownsville and Matamoras have organized a Medical Society, and elected Dr. C. Macmanus, President, Dr. M. Cicero, Vice-President, and Dr. Valls, Secretary.

Cremation in Germany.—Cremation, it would appear, is making great progress in Germany. There has recently been held at Gotha a "Diet" of delegates from the various cremation societies in Germany, as well as of several other countries, including Italy, Switzerland, Holland, and America, the last being represented by Mr. Storer Cobb, of Boston, who is at present lecturing in Germany on the disposal of the dead by fire. The Diet discussed and approved the statutes of a general association of societies for funeral reform and optional cremation, and this association was joined by the local societies of Berlin, Potsdam, Frankfort, Darmstadt, Liegnitz, Chemnitz, Heidelberg, Dresden, Leipsic, Hamburg, Vienna, etc. These societies have already their journalistic organs in the shape of two magazines, called *Gesundheit* and *Neue Flamme* (Health and New Flame). The delegates inspected the crematorium at work in the churchyard of Gotha, and they were assured by the burgomaster that the repugnance of many to this form of burial had been completely overcome by the sight of the decorous and befitting manner in which bodies are reduced to dust by the rapid action of fire, and then inurned.

Lead-eating Insects.—A French architectural journal recalls an observation made by Viollet-le-Duc, that lead plates for roofing and other purposes are often pierced by insects. He accused the wasps of being the authors of the little holes which he found gnawed in lead roofs, but later observers have discovered that both worms and flies often drill through heavy plates. Some twenty-five years ago it was found that the lead bullets of cartridges, which had been stored in wooden boxes, were badly gnawed, and a number of gall or saw flies were found in the act of working upon them. Why these little creatures should amuse themselves in digging out the tough metal with their jaws, it is hard to say. Both males and females were found at work; and the only suggestion which our Gallic contemporary can make is, that they were, perhaps, sharpening their teeth. The first notice of perforation made by worms seems to have been made by M. Janniard, formerly official architect in charge of churches and public buildings, who observed that the lead covering of the steps on the roof of an old house in Paris was bored through in several places. Only one of the steps was attacked; and, on looking closely, he found that every hole in the lead corresponded to a worm-hole in the oak planking on which it was laid.

NOTES AND QUERIES.

In memory of the late Professor S. D. Gross.

The flowers sometimes whose bloom is paling
Their fragrance still enfold,
And rarest fruit is often gathered
From tree and vine grown old.

'Twas so with him. Some hearts, though beating
The pulse of feeble years,
Are young in age, and often singing
Life's loves and songs through tears.

I knew him in that later ripening,
When russet hues turn white,
And saw the uprising fires of glory
That burned before the night.

. . . .

Fame stopped him at the gates of sunset,
And on his kingly brow
She gently bound her wreaths immortal.
He needs no praises now.

Chicago Current.

Official List of Changes in the Medical Corps of the U. S. Navy, for the week ending October 16, 1886.

Woolverton, Theoron, *Surgeon U. S. N.*—Detached from U. S. S. "Shenandoah," proceed home, and wait orders.

Means, V. C. B., *Assistant Surgeon U. S. N.*—Detached from U. S. S. "Shenandoah," and ordered to Receiving Ship "Independence."

Parker, J. B., *Surgeon U. S. N.*—Detached from the U. S. S. "Swatara," proceed home, and wait orders.

Shafer, Joseph, *Assistant Surgeon U. S. N.*—Detached from U. S. S. "Swatara," proceed home, and wait orders.

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, U. S. Army, from October 12 to October 18, 1886.

Everts, Edward, *First Lieutenant and Assistant Surgeon.*—Ordered to proceed to Fort Grant, A. T., and there take station.—*S. O. 94, Department of Arizona*, October 1, 1886.

Fisher, W. W. R., *First Lieutenant and Assistant Surgeon.*—Ordered, on the expiration of his leave of absence, to report to the Commanding Officer at Fort Bidwell, Cal., for duty as post surgeon.—*S. O. 93, Department of California*, October 4, 1886.

Kendall, Wm. P., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended fifteen days.—*S. O. 239, A. G. O.*, October 14, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course, not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1007 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

CHRONIC PURULENT OTORRHŒA; ITS NATURE AND TREATMENT.[1]

BY CHARLES H. BURNETT, A.M., M.D.,

PROFESSOR OF OTOLOGY IN THE PHILADELPHIA POLYCLINIC, ETC.

A CHRONIC purulent or mucopurulent discharge from the ear is usually the result of inflammation of the mucous membrane of the middle ear, and, as such, implies the existence of a perforation in the membrana tympani through which the purulent matter escapes into the external auditory canal, and from the meatus externus. The perforation in the membrana tympani is usually in the lower portion, posterior to or beneath the malleus, in that part of the membrane below a line drawn nearly horizontally through the short process of the hammer—*i. e.*, in the so-called membrana vibrans. In some rare, but very important, cases, the perforation is in the flaccid membrane, or the membrane of Shrapnell, which lies above the short process of the malleus. The latter may be the only perforation, or it may exist with one or more perforations in the lower portion, the so-called membrana vibrans, below the line of the short process of the hammer. Although there is no mucous membrane in the external auditory canal, a chronic purulent discharge, in some very rare instances, comes from the cutaneous walls of the canal, the membrana tympani remaining imperforate. These cases are so rare, however, as not to enter into the observation of any one who does not see a great deal of aural disease.

The rule is, that a chronic purulent discharge coming from the external auditory meatus emanates from the mucous membrane of the tympanic cavity, and indicates, therefore, a perforation in the membrana. A discharge from the ear deserves the name of chronic after a duration of two or three weeks. This form of aural disease is both common and important, is met by all practitioners of medicine, and demands, therefore, their careful attention, both on account of the annoyance its presence gives the patient, and the danger to hearing and life which lurks in its persistence in the middle ear.

Chronic purulent otorrhœa generally begins in childhood. Hence cases of this disease in adults are usually very chronic. The original course of otorrhœa is chiefly nasopharyngeal, and Eustachian tubal catarrh, induced by coryza, teething, and the acute exanthemata. Teething, by inducing a reflex irritation in the middle ear, leads practically to catarrhal inflammation of that cavity, perforation of the drum-membrane, and the establishment of a chronic running. Purulent inflammation of the middle ear is almost invariably preceded by pain, and often constitutes the cause of earache in children.

Among the causes producing purulent otorrhœa in adults, must be named swimming and diving in cold water, plunging the head under cold water, washing the head and allowing it to dry in a draught of air, and also the use of cold water in the nasal douche, and the inhalation of the various patent powders, snuffs, and fluid preparations advertised for the cure of nasal catarrh.

Tuberculosis of the lungs is also a cause of subacute and chronic purulent otorrhœa. This form is characterized by little or no pain, by its tendency to affect the posterior and upper parts of the drum-membrane and cavity, and by its resentfulness of all forms of treatment but the mildest. It is supposed to be due to reflex inhibition of vasomotor power in the arterioles of the ear, supplied by the carotids. The irritation which thus acts reflexly is in the diseased lung. The irritation, passing by the pneumogastric to the sympathetic system in the neck, inhibits influence over the carotids. Passive dilatation ensues in the vascular tract, and those parts of the membrana tympani and middle ear supplied by it undergo passive congestion and inflammation of a low form, without much or any pain, the purulent matter ruptures the membrana, and an otorrhœa, chronic from the outset, is established.

The tendency to chronicity in all aural discharges is favored by the difficulty of keeping the ear clean, and by the improper treatment so often instituted. The retention of matter in the fundus of the auditory canal favors decomposition of the pus, and further disease in the ear. The exposure, too, of the mucous lining of the drum-cavity to the atmosphere, by means of the perforation in the membrana, irritates the mucous membrane, and promotes further inflammation. It is to this fact that acute attacks of earache are due, in cases of chronic otorrhœa.

If chronic purulent discharge from the ear is associated with, and kept up by, chronic catarrh in the nasopharynx and the nares, the rhinitis must receive due attention, or the discharge will not, without great difficulty, be checked. Permanent cure of chronic otorrhœa can hardly be expected, if the nasopharynx remain profoundly diseased.

The natural tendency of chronic purulent disease in the drum-cavity is to impair the hearing. The loss of this function, and the disagreeable odor which attends otorrhœa, are the chief early inducements for patients to seek surgical aid. It is at this period of the disease that the surgeon can do the most good. The impairment of the hearing may be due to thickening of either the mucous membrane covering the ossicles and their joints, or of that over the fenestræ of the vestibule and the cochlea. This thickening of the mucous membrane on these parts

[1] Read before the Philadelphia County Medical Society, October 13, 1886.

brings about an ankylosis in the great mechanical means of audition, viz., the chain of the ossicula auditus, and in the membrane of the round window. By means of the latter, a compensatory yielding to the movements of the ossicles is effected in the normal state. Finally, the purulent disease may loosen the joints of the ossicles, or even destroy portions of them, and thus render it impossible to restore the integrity of the auditory chain. In some rare instances, either the foot-plate of the stapes in the oval window, or the membrane of the round window, is eroded, and hearing is hopelessly destroyed in consequence of the invasion of the internal ear and the auditory nerve.

The perforation in the membrana tympani, by relaxing the membrane, and altering the normal position of the ossicles, also aids in producing defective hearing. After the production of so much destruction in the membrana, disorder in the ossicles, impairment of hearing, and the establishment of a chronic purulent otorrhœa, the disease may continue uneventfully on this plane for years.

The patient may or may not undergo any form of treatment, or at most will cleanse the affected ear, in order to abate the odor which comes from it. If the hearing in one ear is good, the bad hearing in the running ear is endured, and the discharge is not thought of, if it is not copious or offensive. These are the neglected cases, and they tend to the development of granulations and polypi *upon the mucous membrane of the cavity of the drum.* As these form in the diseased ear, the discharge increases in quantity, and the hearing grows duller. These latter facts, as well as the greater anxiety about personal defects in early adult life, finally lead the patient to seek aid. Inspection now reveals a polypus, or perhaps two, with distinct pedicles. Or, if these have not yet formed, granulations are seen, which more or less obscure a view of the drum-membrane. Such granulations, if let alone, seem to coalesce and form the solitary polypus, or perhaps two polypi. Aural polypi vary in size, from a buckshot to a large marrowfat pea; or, if old, and sufficiently compressed by the auditory canal, they assume the shape of the latter, and finally extend from the meatus, after attaining a length of one and one-half to two inches.

Instead of the formation of polypi, the purulent disease may be more destructive, and produce death of the mucous-periosteal membrane in the drum-cavity, and of the subjacent bone. This death of osseous tissue in the aural tract may take place in the tegmen tympani, just beneath the brain, or it may ensue in the so-called antrum of the mastoid cells.

When the tendency of this disease has brought about necrosis in the regions named, the affection has assumed a most serious aspect, because a fatal issue may now be induced at any time by either an embolic process in the brain, the lungs, or the liver. Prior to this course, a fatal meningitis may be set up by an extension of the disease through the roof of the drum-cavity, or through the fenestræ, and thus into the labyrinth and brain, or the necrotic disease having passed into the mastoid cells, the lateral or sigmoid sinus may be affected and purulent phlebitis at this point aroused. A clot may then be formed in the sinus, pieces of which enter the circulation, and thus an embolic process established at some vital point.

Time does not permit us now to consider the various phenomena which would enable us to distinguish these manifold results of chronic otorrhœa. It is enough for us to bear in mind that chronic purulent disease of the mucous membrane in the drum-cavity is always competent slowly, or, in some instances, rapidly, to bring about profound disease in the bony box of the ear, situated very near the brain, and that this chronic disease may be prevented, and its fatal results averted, by proper and timely treatment.

In many instances in chronic otorrhœa, before the worst results occur, warnings of the unfavorable advance of the disease are given, in the form of facial paralysis, violent attacks of ear-pain, with fever and delirium, and attacks of inflammation within the mastoid cells. In some cases sequestræ are thrown off from the drum-cavity, from the inner or osseous part of the auditory canal, and from the mastoid cortex.

Facial paralysis indicates an invasion at the upper and back part of the drum-cavity, and that meningitis, from extension of the disease through the tegmen, may ensue. Inflammation of the mastoid cells is more likely to be followed by phlebitis of the lateral sinus, and its consequences.

Cases of chronic otorrhœa with mastoid inflammation, and phlebitis of the lateral sinus, sometimes terminate fatally by embolism in the lung or liver, without any cerebral disease. Not to neglect chronic otorrhœa is the most important lesson the surgeon can learn, for a cure of the very chronic cases, especially when any of the portentous phenomena I have named make their appearance, is nearly impossible. Patients should be encouraged to have aural discharges stopped as soon as possible, whether acute or chronic. It is an injury to them to foster in their minds the idea that discharges will stop of themselves, or, if not, that they had better continue to run. Abnormal discharges from no other part of the body are allowed to run on disregarded, and, surely, discharges from the ear should not be, for they are as amenable to proper treatment as those elsewhere, and, if neglected, may become serious. From the deep and peculiar situation of the drum-cavity, purulent discharges from this part of the head are likely to be retained, and to undergo decomposition. This favors continuation and extension of the disease, and the mucoperiosteal nature of the tissue in which the affection has its seat renders death of the subjacent bone imminent with consequent involvement of the cranial cavity. The patient, therefore, should demand of his physician an intelligent consideration of such a malady.

Treatment.—The first consideration in the treatment of chronic purulent otorrhœa is cleanliness and cleansing. Cleanliness is demanded in order to prevent decomposition of the discharge in the ear, and septic influences from such a nidus. Cleansing the ear is necessary to enable the surgeon to make a diagnosis of the condition of the fundus and the membrana, and in order to prepare the ear for treatment.

Cleansing the ear is best accomplished by the surgeon, and should very rarely, if ever, be entrusted to the patient. It is best effected by syringing with tepid water, either with or without a disinfectant, if the discharge is copious and tenacious. If, however, the discharge is neither copious nor thick, the ear can be cleansed by a small dossil of absorbent cotton on the cotton-holder. Failure in this procedure is often attributable to the use of too thick a pledget of cotton. This should not be more than five centimetres in diameter. If it is larger it gets wedged in the meatus or in the canal, the fundus is not reached, or only with difficulty and after pushing, which is painful to the patient, and may abrade the canal, or even the deeper parts of the fundus and the membrana.

The syringe may be employed without illuminating the ear by the forehead mirror, but the proper and successful employment of cotton on the cotton-holder can be done only under the best illumination of the auditory canal, by the forehead mirror.

In infants and very young children, with very narrow meatuses, cleansing is most conveniently done by syringing with warm water, the return current from the ear being caught in a towel held beneath the auricle. After syringing, the water must be carefully mopped out of the fundus of the canal by absorbent cotton, in order to gain a view of the diseased parts, otherwise the refraction of the water will give a very distorted view of the objects seen through it.

Cleansing the middle ear is furthered by using some form of inflation of the tympana.

After the first cleansing of the external auditory canal and its fundus, the surgeon should find out in what part of the membrana tympani the perforation is. This may be found either above the so-called folds of the membrane, in the membrana flaccida (Shrapnell's membrane), or below the folds, in the membrana vibrans. The first-named part is a very small portion of the entire part of the membrana lying above the short process of the hammer. The latter, that below the folds, constitutes what is generally known as "the drum." In fact, this part has received nearly all the attention from surgeons, as it is by far the most common seat of perforations. Sometimes a perforation exists in both these portions of the membrana tympani at the same time; but this is not common. It is highly important to determine in which of these parts of the drum-membrane the perforation lies, since the treatment must be modified by the position of the perforation.

Let us first consider those cases in which the perforation is large and in the lower part of the membrana, the membrana vibrans. These, as already stated, are the most frequent.

Earache from acute inflammation in the tympanic cavity, in such chronic cases of purulent otorrhœa, must be combated by gentle warm-water syringing or irrigation, and in protecting the inflamed mucous membrane with insufflation of powdered boric acid. These insufflations and all others can be done either with the blow-tube on the principle of the blow-pipe, or by the hand powder-blower.

In those cases of acute inflammation in chronic otorrhœa with large perforations in the membrana, the pain can often be allayed by the use of instillations of cocaine, because the perforation in the membrana permits the entrance of the solution into the drum-cavity, and its ready contact with the mucous membrane.

Cocaine solutions instilled into an ear with imperforate membrana tympani are impotent to quell pain in the ear. They also seem valueless even when the membrana contains a small perforation, because they still seem to fail to reach the inflamed mucous surface.

If coryza is present, as it is apt to be, in these acute attacks in chronic otorrhœas, it, of course, must not be disregarded. The prognosis in these cases is favorable as to restoration to a relatively normal or healthy state, if the subject is in ordinary health.

It is in these cases of purulent otorrhœa with large perforations in the membrana tympani, that preference should be given to the so-called dry treatment. In this form of treatment very little water is used for cleansing, and only when the discharge is thick and copious, and hence not easily removed by absorbent cotton. The reason for this preference of dry treatment is that the use of water favors the continuance of the discharge in many cases, and promotes a tendency to the formation of granulations and polypi. If syringing the ear is to be done, it must be carried out by the surgeon, and not entrusted to the patient. After the ear is cleansed by either of these methods, some form of boric acid, finely powdered, should be employed by insufflation. This enters the tympanic cavity, and hence comes in direct contact with the inflamed mucous membrane. It remains there more readily than fluid preparations and hence acts longer. The beneficial effects are due to the antiseptic properties of the boric acid, and to the protection the layer of powder gives the mucous membrane. Boric acid may be combined with hydrastin, ten grains to the ounce; calendula one part to two of boric acid; resorcin one drachm to the ounce; chinoline thirty grains to the ounce; alum ten grains to the ounce; salicylic acid or iodoform. This treatment can be carried out only by the surgeon, and during the intervals of treatment the patient is to do nothing himself in the way of treatment. It should be performed every day until the discharge begins to lessen; then at increasing intervals of time.

If this dry treatment does not give entire satisfaction, as it may not or will not, if granulations or ulcerations exist beyond the reach of the powder thus blown in, resort may be had to instillations of astringent and antiseptic solutions, as nitrate of silver—not less than forty grains to the fluid-ounce of water; or carbolic acid solutions from three per cent. to five per cent. in strength. These are to be put in the ear after it is cleansed, and followed by a dressing of insufflated boric acid, either in simple or in compound powder.

In cases of chronic purulent discharge from the attic of the tympanic cavity with perforation only in the membrana flaccida, the dry treatment cannot be relied upon, because of the smallness of such perfora-

tions, and the consequent inability of the surgeon to blow the powder into the diseased cavity. In these cases the treatment consists in the application of solutions to the attic through the perforation by means of the tympanic syringe. The long slender nozzle, six centimetres long by one millimetre in diameter, must be conveyed under illumination by the forehead mirror, down the auditory canal to the seat of disease. I have found the best results to follow the use of injections of a three per cent. solution of carbolic acid by this means into the attic cavity of the tympanum after thorough cleansing of the attic by injections of hydrogen dioxide, which thoroughly removes all pus. They do not tolerate nitrate of silver. It is well to follow these applications by insufflations of boric acid into the fundus of the auditory canal. For though they cannot reach the attic unless the perforation be large, they have an antiseptic effect about the perforation and the rest of the outer surface of the membrana tympani and the fundus of the canal.

Cases of chronic purulent disease in the attic are difficult to treat, on account of the bad drainage from those parts above the ossicles, and because of the small perforation usually found in the membrana flaccida. They are also dangerous to the life of the patient, because the disease lies near the tegmen tympani, directly beneath the brain. Natural deficencies in the bone at this point exist so frequently that the meninges and the mucous membrane of the roof of the drum-cavity are often in apposition. The hearing, too, is nearly always impaired when the attic is diseased, because the joints of the ossicles, especially the malleo-incudal joint, are greatly involved, and their vibrations impeded.

In order to facilitate better drainage of purulent secretions from the attic in chronic disease, and more efficient medication, especially by the insufflation of powders, Dr. Sexton has suggested, and frequently performed, when the membrana is largely destroyed, its removal and then that of the mallens and incus, or their remnants. The fundus is then treated with a powder of salicylic acid and boric acid, until a dermoid cicatrization ensues. This operation is applicable to chronic attic disease, *without perforation of the membrana flaccida*, but with large destruction of the membrana vibrans, in which the diseased mallens and incus interfere with drainage of the attic, downward into the atrium.

In every case of chronic purulent otorrhœa, if the nasopharynx and pharynx are markedly affected at the same time as the ear, they must also receive treatment. Some forms of chronic otorrhœa are certainly aggravated in adults, by decayed teeth and diseased gums. For the discharge in such cases, which may have been inveterate, or often recurrent, ceases upon the removal of the diseased teeth, usually some of the molars, and the healing of the gums.

In any case of chronic purulent otorrhœa, so long as we can detect no lesion beyond impaired vibration in the ossicles, with defective hearing, as a consequence of the chronic disease in the mucous membrane, the cure of the affection may be considered as probable, excepting in tubercular cases far advanced in pulmonary disease. By curing the purulent disease of the mucous membrane, the growth of granulations and polypi, and the occurrence of necrosis and caries of the adjacent bone, are prevented.

If, however, the ear has not been treated, or improperly treated, granulations and polypi may be found, with impairment of the hearing. The granulations are best removed by touching them, and only them, with chromic acid, carefully conveyed to their surfaces on a small cotton tuft, not more than two millimetres in diameter, on the cotton-holder, under perfect illumination of the canal and fundus by the forehead-mirror.

If polypi, with distinct pedicles, have grown from the mucous surface of the middle ear, and extend into or from the perforation in the membrane, they must be extracted with the polypus snare, and their pedicles touched every day or two, until they disappear. These are entirely curable, and the discharge from the ear usually ceases after the removal of the polypus and the destruction of its roots, and the hearing improves. The removal of the polypus, without subsequent treatment and destruction of its pedicle, is useless.

Instead of this conservative, hypertrophic action, on the part of the mucous membrane, it may slough, leaving the subjacent bone bare. The latter then dies, either superficially or in its profounder parts, and some of the evils I have sketched are experienced by the patient. If such cases are seen before they have advanced beyond the destruction of the mucous membrane, and properly treated, the mucous membrane may be repaired, and necrosis of bone beneath it averted. In some cases of profound inflammation and ulceration of the mucous membrane of the drum-cavity, denuded bone can be felt with a probe, and crumbs of bone are thrown off with the aural discharge. But with the improvement in the condition of the ear, these particles of dead bone cease to appear, and denuded bone can no longer be felt. In such cases the ear should be syringed once daily, by the surgeon, with tepid water, in which salt or potassium permanganate may be placed. Or the ear may be syringed with weak solutions of corrosive sublimate, 1 : 1000, carbolic acid five per cent., or with undiluted peroxide of hydrogen (Lehn & Fink's, or Schiefflin's). This drug has the great advantage in breaking up and removing all pus, and of informing the surgeon when this is accomplished, by the cessation of foaming which ensues as soon as there is no more pus, with which it makes a frothy reaction. Thereafter the ear is to be dressed with the powder of boric acid already named. Cleanliness and antiseptics, with attention to the general condition, form the guiding motives in the treatment.

If sequestra form, they should be removed if possible. In this way portions of the labyrinth, or the cells and cortex of the mastoid are at times taken from the ear, and the parts of the cranium near it. So long as they remain, as it were, in the aural tract, they are obstacles to cleanliness and points of infection threatening the entire system.

In many cases, indeed I am inclined to say in most cases, of necrosis of the cranial wall from chronic aural purulency, operative interference is well-nigh

useless. Unless it be the mastoid cortex, all other parts of the auro-cranial surface are extremely difficult to operate upon, and surgical interference becomes a dangerous undertaking. Again, when the surgeon is consulted in cases of intracranial disease, a systemic septicæmia, arising from chronic purulent disease and necrosis in or about the ear is established, and the patient is beyond aid. To trephine for cerebral abscess, which has resulted from chronic aural disease, is to operate on a moribund patient, and to hasten surely the fatal issue. The time to aid such a sufferer was when the chronic purulent otorrhœa could have been checked, and before it had induced necrosis of bone or embolism. In my opinion, there never is a moment after the cerebral abscess is formed, that an operation for its relief is justifiable, excepting perhaps in those instances in which a sinus can be found leading to it from the mastoid or squama. In regard to mastoid trephining, for so-called mastoiditis and periphlebitis of the lateral sinus, my opinion is much the same.

The mastoid cortex can be easily perforated and the mastoid cavity opened, the operation in itself being comparatively a simple and safe one. But such an operation is rarely, if ever, needed, because an acute inflammation originating in, or limited to, the mastoid cells, without possibility of other escape, rarely if ever occurs; and for such a disease alone would trepanation of the mastoid cortex be demanded.

I admit that a chronic purulency in the tympanic cavity may gradually and painlessly affect the mastoid antrum, its cells, and its outer cortical as well as its inner wall, which is the outer wall of the lateral sinus. This diseased state in the furrow of the lateral sinus is of the most serious import, but an operation on the mastoid cortex cannot arrest its progress or remedy its effects. Too often when pain in the region of the mastoid is felt, and other well-known symptoms of so called mastoiditis arise, the pain is really due to inflammation in the lateral sinus, or deeper parts from such chronic disease in the bone, and not to matter pent up in the mastoid cells, which a perforation in the mastoid can relieve. I am forced to such conclusions, because fluid matter from the drum-cavity and mastoid antrum can escape, in most cases, from the external ear. Also, because in many cases of pain in and about the mastoid, with symptoms which are supposed to justify trephining its outer cortex, the cavity has not been found filled with fluid matter seeking an escape, but with some inspissated pus at most; while periphlebitis in the lateral sinus has been discovered, having its origin from the neglected tympanic disease, which trephining is powerless to cure.

Even if the mastoid cortex and cavity are found diseased, an operation upon them will do no good if the lateral sinus is diseased, and perhaps the seat of a clot.

When mastoid operations are supposed to have been of value and to have done good, as has sometimes been claimed in acute cases of otitis media, there is ample evidence that they were not really needed.

In many cases of tumefaction behind the ear, in painful acute inflammation in chronic cases, Wilde's incision does give great relief. And in some such cases where this incision has been followed by perforation of the bone, and relief and apparent cure have followed, it has been because there was no disease in the inner mastoid wall and the lateral sinus. In such cases the local depletion gave the relief, and the mastoid perforation was purely gratuitous. The result would have been just as fortunate without the embellishment of the operation of trephining the mastoid. Hence in acute cases of otitis media great care should be taken not to resort precipitately to mastoid trepanation. In chronic cases it is of value in very few instances, and the indications for its employment are not well defined. In many cases the mastoid becomes œdematous, brawny, shining, sensitive to both deep and superficial pressure, and painful to the patient. These are often relieved by poulticing and leeching, without even Wilde's incision. Sometimes if let alone, they undergo speedy resolution.

In any such instance of supposed mastoiditis, consequent upon chronic otorrhœa, the simplest means of treatment at our command should be used. If the lateral sinus has not been invaded, there is no need of haste. If it has been attacked, mastoid trephining will certainly not check it.

It must not be forgotten that many instances of pain and swelling about the mastoid are due to congestion and swelling in its mucous lining, and in that of the middle ear and mastoid antrum. The circulation both within and without the mastoid is then impeded, and swelling, œdema, and tenderness of its outer surface are the result. Hence the relief obtained sometimes by spontaneous resolution, or by artificial depletion over the cortex of the mastoid. As the swelling in the mucous membrane of the middle ear and antrum goes down, relief is given to any matter which may have been dammed up in the mastoid cells, and which now escapes and runs into the external ear, and the mastoid pain and swelling disappear.

ON TETANY AND TETANILLA.[1]

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Amongst the convulsive diseases of the nervous system which we are in the habit of encountering in the practice of our profession, there are some which have, on account of the extreme severity of their symptoms, engrossed the attention of physicians almost from time immemorial. The principal representative of this class is epilepsy, which was for a long time believed to be a special infliction sent by the wrath of the Almighty, being termed *morbus sacer* by the classical writers. Tetanus arising from injury and exposure to cold, was likewise already well known to Hippocrates and Aretæus, and has, as well as epilepsy and chorea, engaged the attention of innumerable observers, while even at the present day all these diseases offer to those

[1] Read before the New York County Medical Society, October 18, 1886.

who are willing to investigate them patiently, points of interest that are still involved in obscurity. The complaint to which I intend to refer to-night has, no doubt, always existed, like the more formidable diseases which I have just mentioned, but has only been recently recognized as a special entity, partly, no doubt, on account of its symptoms being habitually much less severe, and partly from having been confounded with other diseases, which although they resemble it in some particulars, are nevertheless totally distinct from the same.

Tetany is not frequent, but where it occurs it presents points of considerable physiological and pathological interest, and is occasionally so severe as to lead to a fatal result. It is also practically important for physicians to be familiar with its clinical features and its pathology and treatment.

There is another kindred complaint to which I have for many years past drawn attention at the hospital, and which I have termed tetanilla. I have, however, up to the present time never published my observations on the subject, and was, in 1881, forestalled in this point by the late Prof. Friedreich, of Heidelberg, to whom we owe such excellent work on muscular atrophy and hypertrophy, and who was also, as you know, the first to describe that peculiar and unusual form of locomotor ataxy which runs in families and habitually begins about the age of puberty, and which is now generally designated by the name of Friedreich's disease. This able pathologist, whose premature death from aneurism of the aorta we deplored not many months ago, gave to the complaint which I have just introduced to your notice as tetanilla, the somewhat barbarous name of paramyoclonus multiplex. Löwenfeld and Seeligmüller have more recently described cases of this affection, and I will make use of the opportunity which this meeting affords me to speak of my own experience with regard to it. Of course, I do not in the slightest degree wish to interfere with Friedreich's unquestionable right of christening a disease of which he was the first to record his observations; but I confess that the name tetanilla which I had, as it were, privately given to the affection, sounds to me much more euphonious than paramyoclonus multiplex, while the fact that both appear to be functional disorders of the nervous system, showing their chief symptoms in closely allied muscular disorder, would seem to favor the idea of giving them somewhat analogous names, showing at the same time in the word tetanilla, the less degree of severity which the latter form is apt to assume in practice. It will, however, be for the profession to decide which name shall eventually be adopted.

I think I shall do best if I commence my remarks on tetany, of which I have seen altogether ten cases —four in males and six in females—with a short historical retrospect of the work which has been contributed by various authors who have had opportunities of investigating this complaint. I do so more particularly because recent French writers have claimed it as a peculiarly French disease, and one which has, according to them, "une paternité toute française;" the fact being that the first description was given by a German physician, Steinheim, in 1830, while the first French publication, by Dance, appeared quite a twelvemonth later, viz., in the *Archives Générales de Médecine* for the year 1831. Of course, it is not to be supposed that Dance should have been acquainted with Steinheim's essay at the time he wrote; for the French have only commenced at a very much later period to read German publications; and when Dance wrote they were in the habit of looking upon everything German or English as only fit for barbarians, whose prescriptions might be good enough for horses—"médecine de cheval" being even now a not uncommon term with the French for any foreign system of treatment. At any rate this fact remains, that Steinheim was a year in advance of any other writer on the subject, and it seems, therefore, hardly fair that Delcroix should in his recent thesis on the subject, moved no doubt by the noblest patriotic sentiments, have substituted the year 1830 for 1831, as the date of publication of Dance's paper. I have myself verified the reference; and while I am free to admit that Dance's publication is an unusually able one, I have to state that in point of time it is unquestionably the second, not the first. Dance, who was then physician to the Hotel Dieu, at Paris, has given a detailed description of four cases of the affection, and pointed out with considerable minuteness its difference from simple cramps, muscular rheumatism, tetanus, hysteria, as well as certain affections of the spinal cord, nerves, and muscles. He laid stress on the paroxysmal character of the spasms, and the favorable issue of all cases in spite of occasionally alarming appearances; and believed the disease to be a kind of intermittent and non-pernicious tetanic fever. I may here at once say that, although Dance's paper is more interesting than Steinheim's, nevertheless the French writer's view of the pathology of the complaint—viz., that it is owing to malaria, has not been confirmed by further experience; while the German author's statements that the rheumatic diathesis is at the bottom of the disease, has, at least for a certain number of cases, turned out to be correct.

The name, tetany, which is universally used, originated with Corvisart, in 1851. Trousseau, who in his practice at the Hotel Dieu, in Paris, enjoyed unusual opportunities of studying the complaint, met with it at first only in nursing women, and called it rheumatic contracture of wet-nurses; but he soon perceived that it also arose from other causes than lactation, although he looked upon the latter as the most active and frequent causative influence. The complaint was subsequently studied by Moxon, who termed it remittent tetanus, by Wilks, Riegel, and more especially by Kussmaul (in 1871), whose fine clinical instinct enabled him to draw such a striking picture of the complaint, that he succeeded more than any previous writer in attracting general attention to it. Erb, Chvostek, and Weiss are amongst the later authors who have added their quota to the pathology of this disease.

Tetany consists of a succession of attacks of tonic spasm or rigidity of certain groups of muscles, mostly symmetrical, which follow one another at somewhat

irregular intervals, and are after a variable time followed by relaxation. The attacks are not accompanied with loss of consciousness, but there is throughout the course of the complaint undue mechanical and electrical excitability of the motor nerves and muscles.

The chief causes which appear to give rise to tetany are certain kinds of irritation acting on an otherwise predisposed or enfeebled nervous system. Thus, it occurs after and in consequence of persistent diarrhœa, more especially in the underfed and half-starved children of the poor. Kussmaul has described the case of a boy, aged six, who had been brought up by hand in wretched surroundings, and had lately lived almost exclusively on small beer; indeed during the first few days the little fellow was in the hospital, he refused all food excepting beer, and suffered from incessant diarrhœa. He eventually recovered from the diarrhœa as well as the tetany, but was three months afterward seized with a violent attack of vomiting and purging, after which the tetany reappeared. The same cause I ascertained in the case of a little girl, aged three, whom I saw at the hospital in 1881, and who had been reduced almost to a skeleton by incessant diarrhœa. The attacks came on in her hands and feet every few hours, and lasted about twenty to thirty minutes, during which time she kept yelling in the most fearful manner. Her mother had suffered from hysterical fits, and a sister had had chorea. Obstinate constipation and entozoa in the intestine have likewise acted as exciting causes.

A case is on record in which the ova of tænia medio-canellata and trichocephalus dispar caused tetany, which latter ceased after the parasites had been expelled from the bowels. The irritation of dentition has likewise been assumed to give rise to tetany, although the evidence supporting this point is not strong. Irritation in the sexual sphere of women, and occurring in connection with menstruation, pregnancy, the puerperal state, and lactation is, however, an undoubted factor in the production of the complaint. It also occurs after smallpox, cholera, typhoid fever, and other acute diseases; indeed, Aran has seen it occurring in a dozen convalescents from typhoid fever who were in the hospital at the same time. Bauer has also seen it simultaneously in three women of the same family who had eaten unwholesome bread. This had been procured from a distance on account of its cheapness, and was so mouldy and nasty that the men of the family refused to touch it. None of them had tetany, and the three women recovered after discontinuing to eat of this particular bread. Bauer thinks that it may have contained ergot of rye, but could not procure a sample for analysis.

Another active agent in the production of the complaint, and which was chiefly dwelt upon by Steinheim and Trousseau, is the influence of wet and cold. The latter observer describes the case of a man who was found in the streets of Paris one morning in winter, having passed the night there in a state of intoxication, and being so stiff that he was believed to be in an epileptic fit, yet he had been quite conscious all the time. While under observation in the hospital, he was found to be subject to attacks which lasted from a few minutes to half an hour, and had such good use of his limbs in the intervals as to enable him to attend upon the other patients in the wards. On account of the undoubted influence of cold in its production, tetany has also been called intermittent rheumatic contracture. Sleeping habitually in damp rooms, or working in damp shops, appears to favor an outbreak; and exposure, no doubt, often acts concurrently with other influences. Thus, one of the nursing women in whom Trousseau saw tetany, was found to have got out of bed in the night and gone outside into the yard of the hospital in order to fetch water from a pump in midwinter. She died of asphyxia produced by tetany of the respiratory muscles shortly afterward. In one of the cases which have fallen under my own observation, tetany came on quite suddenly in a young man aged eighteen, who had, while skating in the Regent's Park, in London, broke through the ice and had been nearly five minutes in the water before he was rescued. An emotional influence, however, was probably likewise active in this case in addition to the chill, as the patient being unable to swim, underwent an agony of fear of drowning all the time he was in the water. It is not uncommon that there should be several influences at work in determining an outbreak of a nervous affection; I will only remind you of tabes spinalis, in cases of which we generally find a history of three causes, viz., syphilis, exposure to cold and wet, and over-exertion, whether physical or mental.

An emotional influence was likewise evidently at work in another case of tetany which was under my care in 1879, and which was that of a young lady, aged twenty-one, who had been engaged to be married, and in whom the disease appeared quite suddenly the day after she had had a quarrel with her lover, in consequence of which her engagement had been broken off.

Simon and Regnard have described what they call an epidemic of tetany, which occurred at Gentilly, in France, where it went through a young ladies' school. At first the cases were very few; one girl was affected in July, and another in October; in November, however, quite an epidemic broke out, there being eight new cases on one day, and eleven on the next. The governess at first tried to arrest the progress of the disease amongst the girls, but eventually got it herself. The school was then broken up, and all the girls recovered rapidly. Similar epidemics have been described as having occurred in some prisons and asylums in Belgium. It is, however, quite clear from the description given of the epidemic among the French schoolgirls that there was no real tetany present, but that it amounted to an endemic manifestation of hysteria which, in its symptoms, had a considerable resemblance to tetany. We know that hysteria may mimic most diseases, and need not, therefore, be surprised that it will occasionally mimic tetany. With regard to the cases observed in the public institutions in Belgium, it appears probable that they were in reality such an epidemic of spinal meningitis, as in some of them an inspection was obtained showing the patho-

logical lesions of meningitis; and I shall presently in my remarks about the diagnosis of tetany, refer to the possibility of its being occasionally confounded with that disease. It is, however, a fact that cases of tetany do sometimes occur together; but the explanation of this would seem to be the influence of exposure to unusually severe cold prevalent at the time. Thus, Weiss had twelve cases under his care in the severe winter of 1881, at Vienna, and Chvostek saw seven in the winter of 1880, in Austrian soldiers who, during target practice, suffered considerably from exposure to the intense cold which then prevailed.

In May last, Ord, of London, exhibited at the Medical Society of that city, the case of a woman who showed the usual symptoms of myxœdema, and in addition to them a peculiar symmetrical contracture of the flexor muscles of the hands and legs, strongly resembling tetany. In connection with this case it is interesting to remember that Weiss has seen four cases in which the excision of the enlarged thyroid body, by Prof. Billroth, of Vienna, appeared to give rise to the affection. In one of these cases it appeared on the sixth day after the operation; in a second, on the evening of the same day, and in two other instances immediately afterward. One of these patients eventually died of it. In another case the tetany lasted six days after the operation, then disappeared, but relapsed when an abscess had formed in the neck; it ceased finally after this had been opened and healed. Weiss does not assume any particular relation to the bronchocele, but thinks that it was only the irritation caused by the surgical operation *per se* which caused the tetany; yet it seems a curious coincidence that four cases of tetany should have appeared in connection with thyroidectomy, while it is not known to have occurred after any other surgical operation; and in connection with this, Ord's case which I have just mentioned, is of interest, as raising the question, whether there may not be some more intimate connection between atrophy or absence of the thyroid gland and tetany, than has hitherto been assumed. I would recommend this point to your attention, should similar cases present themselves in your practice.

Tetany has probably no connection at all with certain kinds of occupation, as has been assumed by some writers. Indeed, it has by some been termed cramp of tailors, cobblers, and seamstresses, or professional spasm generally; but the fact that it not uncommonly affects infants, as well as women who have no particular kind of manual labor to perform, and finally in men in all kinds of occupations, speaks strongly against this assumption. The age at which it is most frequent, is the period between one and five years, and again that between fifteen and thirty years. As to the influence of sex, females seem to be rather more liable to it than males.

On reviewing all the different determining influences which I have just mentioned, it is impossible not to be drawn to the conclusion that they can, one and all, only be looked upon as exciting causes; and that constitutional neurotic disposition must be present in patients in order that such causes as cold, diarrhœa, etc., may be effective in leading to the outbreak of tetany. As, however, this point has not as yet been very clearly made out, I have taken some trouble in gaining information upon it in those cases which have happened to come under my care. The result has been that in not a single case was there any direct heredity, for to all my patients and their friends and relations the disease was entirely new, and something they had never known or heard of. In five out of ten cases I have seen, however, such diseases as hysteria, migraine, epilepsy, and chorea had occurred in the parent or other members of the same family. This would already give a proportion of fifty per cent.; but I have to add to this a case of atavism, as the maternal grandfather of one of the patients had died insane; and another case where the parents of the patient were first cousins, and where therefore a neurotic predisposition might be assumed to exist. It is therefore seen that only three cases out of ten were, or appeared to be, entirely free from a neurotic taint, so that my contention of a constitutional tendency being at the base of the complaint, would appear to be well substantiated; more especially when we remember that either through ignorance or carelessness of the persons concerned, the family history given us in such cases is frequently far from complete.

The evolution of the symptoms of tetany may be somewhat rapid or more gradual. In some cases, and, according to my experience, more especially in those where a cause has acted very suddenly, the disease may appear at once fully developed; while in those where the power of resistance of the nervous system appears to have been more gradually undermined by various deteriorating influences, there is a progression in the symptoms which goes from piano through the different degrees of crescendo up to forte, and eventually to fortissimo. Amongst the premonitory symptoms, where such are present, we find more particularly a general feeling of malaise, as of some impending illness, headache, dizziness, specks floating before the eyes, and a feeling of stiffness and awkwardness, or shooting pains in the limbs. Slight temporary rigidity of certain muscles may be combined with this, or there may be a few twitches which subside again presently. These symptoms generally become aggravated, and eventually tetany sets in. Both hands are then seen to have assumed a peculiar position, which is not always the same, but varies according to the several groups of muscles which may happen to be affected. In most instances, it is the muscles supplied by the ulnar nerve which suffer; in some, those under the control of the median nerve, while only very occasionally those which receive their motor impulses through the musculospiral nerve are affected. In accordance with this, it is found that the common position of the hand in tetany is the conical one, resembling that which the accoucheur uses when introducing his hand into the vagina. In this the thumb is forcibly adducted, and the fingers are flexed in the metacarpo-phalangeal joint and pressed against the thumb, while the wrist is bent and turned toward the ulnar side of the arm. The spasm may stop there, or proceed higher up, involving the forearms, which may be bent and

crossed over the epigastrium, and the arms, which may be strongly adducted to the body. In some cases, again, the fingers are so strongly clenched that the nails enter the flesh and produce eschars; the thumb may almost disappear underneath the other fingers, or it is squeezed between the first and second finger so as to show the thumb-nail between their first phalanges. Where the interosseous and lumbrical muscles are rigid, the hand assumes the bird-claw position which was first described by Duchenne. Or there may be spasm in the extensor muscles, the fingers and wrist being stretched out, and unable to be bent, and the fingers being wide apart. A considerable variety of positions may thus be produced, and it is therefore important to remember that the position of the hand which was first mentioned, is not absolutely pathognomonic of the disease. At the same time there is in true cases of tetany, always some degree of rigidity in the muscles supplied by the ulnar nerve, and when this is entirely wanting, the case is most probably not one of tetany.

In the lower limbs the spasm is generally seen to begin in the toes, which are held in plantar flexion, closely pressed against each other, but extended in the metatarso-phalangeal joint. The big toe is adducted and beneath the others, the foot in the varo-equine position, with the heel drawn up, and the tendo Achillis strongly retracted; or, again, the toes may be stretched out, and each one be as wide apart from its neighbors as possible. The feet may be adducted, the knees extended, and the thighs stretched on the pelvis, while in other cases the legs are drawn up to the abdomen. Walking during the attack is thus rendered difficult or impossible; indeed, sometimes there is persistent contraction of the muscles of the calves, so that the patient is quite prevented from moving about, while in other cases the rigidity is so distributed that only the heel touches the ground, and the toes are raised up. The effect of this is the same, viz., to interfere altogether with walking.

In some cases only one side of the body, or only the upper limbs, or only the lower ones are affected, or they may suffer alternately; but mostly there is symmetrical affection in both sides of the body.

In the large majority of cases, only the muscles of the extremities are thus affected; but in some the rigidity also involves those of the head and the body. The head may be pulled down on the chest, and the spine curved; the muscles of the neck may be so rigid as to stand out like tight cords, and to compress the jugular veins; the lips and tongue may be quite rigid; the eyes may be spasmodically closed, and through contraction of one or the other of the ocular muscles, the various forms of strabismus may be produced. The face may be devoid of any mobility of features. The muscles of the lower jaw, and of the pharynx and larynx, likewise do not escape in some cases, and this leads to difficulty in masticating, swallowing, and breathing. In extreme instances there is spasm of the glottis, with great dyspnœa and cyanosis. The diaphragm and the other muscles of inspiration then appear to be fixed, and if this condition is not speedily relieved death from apnœa is the result. Even the bladder may suffer, as shown by retention of the urine, together with frequent desire to micturate. A very bad attack, in which dyspnœa may be so severe as to threaten the life of the patient, sometimes ends with profuse perspiration, and as soon as this is well established, all symptoms are relieved. In one of Dance's cases, perspiration was so abundant as to form a cloud of steam around the patient.

The contraction of the muscles is sometimes very painful, and more especially so in children, who often scream and yell throughout the attack. In other cases there is rather a stiff and bruised feeling than actual pain, together with great tenderness on pressure. The degree of contraction may vary from one minute to another, and this occasionally leads to spasmodic jerkings of the muscles. Where there is much pain, the patient is restless and agitated during the night, and desires constant change of position, while another may lie still in bed like a statue. During the attack the muscles may be entirely withdrawn from the influence of volition; in other cases the rigidity is more moderate, and allows of some degree of movement. Habitually the muscles feel as hard as iron. In a severe case there is so much resistance to passive movements that a great deal of force is required to counteract the rigidity; and the instant we let go, the contraction reasserts itself. Attempts to overcome the rigidity are very painful. Friction often diminishes the rigidity, while pressure may increase it. A sudden impression of cold and heat may also arrest the spasm; thus, if the patient be made to stand with his naked feet on the bare floor, or if his hands be immersed into vessels filled with hot or cold water, the rigidity may relax, but only to reappear again as soon as the influence of these agents is withdrawn. The duration of the attack is variable; it may last only five minutes or as many hours, and may be repeated over and over again; but where the condition appears to have continued for days together, it is probable that, as in certain cases of epileptic fits, the intervals have been short, and remained unnoticed by the attendants. If this should not be the case, then I would say that the case was not one of tetany.

Trousseau was the first to notice that, so long as the diseased condition persists, we may, at a time when the patient is quite free from rigidity, produce it almost immediately by compressing the affected limbs, more especially at points where we can act on large nerves or vessels, so as to interfere with circulation. This discovery was made accidentally. He had ordered a woman suffering from tetany to be bled, and noticed that when the bandage was drawn round the arm, the muscles below tightened. He afterward found that such an affect is produced more especially with the upper limbs, where pressure on the brachial plexus above the collar bone, or the median nerve in the arm, will lead to it. In the lower limbs pressure on the sciatic nerve or the femoral artery may do the same; but here the result is not so quick and certain as in the upper limbs. In one case Trousseau found a very suggestive illustration of the well-known law of reflexes formulated by Pflüger, viz., that the effect of the stimulation is greatest at or near the spot where it is applied, and

that an increase of stimulus is required for affecting more distant parts, which are then acted upon in a certain order. In that case ligature of the right thigh produced first contraction in the toes of the right foot, then in those of the left foot, afterward in both hands, and finally a violent attack of hysteria.

Kussmaul was led by his observations on this symptom to the result that it is pressure on the arteries rather than on the nerves, which causes these effects in the muscles. When he compressed the brachial artery of a patient during a free interval, he noticed that in twenty or thirty seconds the fingers began to twitch; in two or three minutes the flexion appeared to be increasing, and very soon afterward the hand and forearm were spasmodically bent. The proceeding was not painful; when the pressure was withdrawn, the spasm disappeared, and pressure on the nerves did not cause the same effect. My own observations have led me to the result that Trousseau's symptom is produced by pressure both on the nerves and on the bloodvessels, and that complete compression of the latter leads more quickly to the expected result than that of the former. This is more particularly seen in the lower extremities, where compression of the femoral artery in front of the os pubis brings about muscular twitches and rigidity much more rapidly than compression of the sciatic nerve in its notch.

My study of this point has also led me to a very singular observation, which is likely to prove of some importance in the differential diagnosis of tetany from hysterical contracture, as it tends to show that tetany and hysteria are two widely different conditions. I have seen cases of hysterical contracture closely resembling the habitual position of the hand in tetany, where the history of the case was obscure, and it was difficult to make out whether the muscular rigidity was paroxysmal, as it is in tetany, or continuous, as it is in hysteria. In these cases compression of the limbs by Esmarch's bandage enabled me to decide this question; for it appeared that while in tetany pressure increases the rigidity still further, on the contrary, in hysterical contracture the rigidity was relieved, and ceased after the bandage had been applied for some time; to return, however, again almost immediately after the pressure was withdrawn. This singular circumstance seems to show that the arterial anæmia and venous congestion which are produced in a limb by compression, may cause opposite effects according to the condition of the nervous system with which we may have to deal, leading in one case to contraction, and in another to relaxation of the muscles. This is a point which requires further elucidation, and the study of which I would recommend to you in similar cases, as it may eventually throw light on the more intimate nature of the vasomotor disturbance which is present in such conditions as hysteria and tetany, and of which we are as yet in almost complete ignorance.

Another important feature of tetany upon which I must dwell now, is an alteration in the electrical and mechanical excitability of the affected nerves and muscles, which occurs habitually in the cases now under consideration. Indeed, the faradic and galvanic excitability of the affected nerves which was first examined by Benedict, and afterward by Chvostek, Erb, and others, is generally found to be much increased. A feeble constant current causes with the cathode not only the ordinary closing contraction much more readily than in the average healthy subject, but also tetanus of the muscles, which continues for some time; and what is rare in man, although not uncommon in the frog, tetanus with opening at anode, and likewise with opening at cathode. Ready responses are also elicited with a very gentle faradic current; and this ensemble of phenomena constitutes the reaction of convulsibility.

These signs are chiefly marked when the disease is at its acme, become less striking as the patient improves, and disappear altogether when he is well. They occur, however, only in the nerves and muscles which are actually suffering from tetany, not in all the muscles of the body; and this easily explains the apparent discrepancy in the results obtained by the different observers. Erb saw no reaction of convulsibility in the portio dura, while Chvostek found it very marked there in a case in which the muscles of the face were suffering from tetany. The electric tests are not only of diagnostic, but also of prognostic importance, as they sometimes persist when the patient is apparently quite well in other respects. They then show us that the disease, although in abeyance, is not actually conquered, and that there is a liability to a fresh outbreak of the other symptoms. When, on the contrary, the responses have become normal, we may consider with certainty that the patient has recovered. They are, therefore, even a finer test than Trousseau's symptom, which may have disappeared at a time when the electrical reactions are still abnormal.

The mechanical excitability of the nerves and muscles is likewise habitually increased. A tap with the fingers or the percussion hammer on the nerves causes a sudden contraction in the muscles which they supply. This is more particularly noticeable in the sphere of the portio dura, where a slight blow in the region of the stylomastoid foramen, or the pes anserinus, or even the smaller branches of the nerve, effects sudden contractions of the facial muscles; and that not only during the attack, but also in the free intervals. A good way of producing the phenomena in question is that recommended by Schultze, viz., to pass the finger-nail rapidly down one side of the face, from the temple to the cheek and jaw, when all the facial muscles are seen to contract. The reflex excitability of the skin is not exalted, and has indeed nothing to do with the appearances observed; for when the skin is taken up in a fold, and then strongly squeezed or pinched, no effect takes place. This increased mechanical excitability occurs in the portio dura habitually, even where that nerve has otherwise apparently escaped the influence of tetany; and it is, therefore, a very important diagnostic help. We must, however, remember that it is not invariably present. Moreover, I have seen it in recent cases of paralysis of the portio dura, concurrently with the increased voltaic excitability of the muscles; and also in some patients suffering from neurasthenia and hysteria. This shows that it

will not do, in this as in other diseases, to rely on a single symptom for our diagnosis, but that we have to judge from the entire evidence which the aspect of the case offers to us.

Another symptom which exists during the free intervals is a decided loss of coarse muscular power. This can be shown by the dynamometer, which I have found to register habitually thirty or forty degrees less than we should expect from the general build of the patient, and this loss is made up after recovery. There is also subjectively a feeling of lassitude, and fatigue is easily induced by slight muscular exertion.

While, therefore, tetany shows us a great variety of symptoms in the motor sphere, these are much less conspicuous in that of sensibility. I have already stated that much pain is sometimes experienced during the attack, more especially by sensitive children, who are at the same time reduced in their general health, but some patients say that the pain is insignificant. There is, however, generally tenderness to pressure and percussion over the affected nerves and muscles, more especially during the attack, and the same is found in the spine, particularly at that decisive point, the seventh cervical vertebra. Feelings of cold or heat, pins and needles, and other forms of paræsthesia, are occasionally present, but as frequently absent. Sometimes, however, the sense of touch is blunt, so that the patient feels objects as if padded, and imagines that he is walking on a carpet when on a bare floor. The muscular sense is habitually not impaired.

There are few other symptoms to mention. Sometimes there are redness and œdematous swelling, more especially in the smaller joints of the fingers and toes, but also in the wrist and about the ankle, leading us to suspect an attack of acute rheumatism or rheumatic fever. The temperature is mostly normal, but rises to 100° or 101°, and even more in very severe or acute cases, and the pulse is thus accelerated, although habitually normal. There may also be headache, dizziness, flushing of the face, buzzing in the ears, impaired sight, with large and sluggish pupils, rapid breathing, loss of appetite, obstinate constipation and either unnatural dryness of the skin or excessive perspiration. In the majority of cases, however, the secretions do not appear to undergo any morbid change. It is true that Delpech has described albuminuric tetany, but these cases belong to a different class from those we are now considering.

The duration of the individual attack of rigidity varies from a few minutes to half an hour or longer, and the number of attacks during the day is even more variable. Sometimes there are only two or three, at other times there is an almost constant succession of them, reminding one of the status epilepticus, and going on during the night as well as day. The entire duration of the disease is rarely less than a month, and more commonly two or three months.

A few cases of tetany have ended fatally, but, in spite of this, morbid anatomy has not furnished us with precise data concerning the nature of any pathological change. One of Trousseau's patients died eventually of phthisis, and the upper portion of the cord appeared to be somewhat softened.

Kussmaul discovered myelitis in a young man who had been seized with paraplegia some weeks after having recovered from tetany; but the occurrence of paraplegia shows that the case was a complex one, and it therefore proves nothing. Langhans has microscopically examined the cord of a child which had died of tetany. He found the nerve-cells and fibres, as well as the interstitial connective tissue unchanged, but the arterioles showed thickening of the adventitia by deposition of cells, granules, and pigment; and this was in accordance with the symptoms observed during life, more marked in the upper than in the lower region of the cord, and more particularly about the anterior commissure. Such changes, however, which must have had a very gradual origin, cannot account for a complaint which often originates suddenly, and ceases almost as quickly. I fear that just as little can be learned from a case of Weiss's where death took place from œdema of the lungs, following lobular pneumonia at the left base, and in which Zemann found the brain and membranes slightly œdematous, but otherwise normal; the capillaries of the gray centre of the cord appeared distended, and in parts there were very small capillary hemorrhages, while the coats of the bloodvessels appeared normal. Such changes probably are effect rather than cause. In other instances hyperæmia of the dura mater, of the pia on the base of the brain, of the pons, bulb, and upper portion of the spinal cord, and of the peripheral nerves which had more especially suffered during life, have been found; and must likewise be looked upon as secondary rather than primary. Indeed, the great diversity and variety of these changes is in itself a proof that we have not as yet discovered the lesion of tetany; while other considerations lead us to think that, if there is a lesion, it is likely to be molecular rather than coarse, and that tetany belongs indeed to that large class of functional nervous affections which await the application of finer tests than we command at present, before we can have a clear insight into their nature.

Nevertheless some speculation seems to be allowable and even called for, more especially with regard to the localization of the trouble which is present in these cases. That it must be seated in some portion of the motor sphere is quite evident from the symptoms we have to deal with, in which the affection of motility overshadows everything else. We have a large choice from the central convolutions of Rolando at one end of the tract to the striped muscular fibres at the other. Which is primarily affected? De La Berge has pronounced himself for the muscular substance itself; Delpech Hasse and others for the peripheral nerves; Kussmaul, Erb, and Berger, for the spinal cord; Weiss, for the sympathetic nerve, which he believes to be in a state of irritation or disturbance which is constant, but periodically increased, and, while causing irritation of the gray matter of the cord and medulla oblongata, is itself caused by irritation in the bowel, womb, thyroid body, and other viscera. No one seems to have suspected the pons, crura cerebri, the central ganglia,

the white internal capsule, and the central convolutions; and this appears quite intelligible, if we consider that the symptoms are habitually symmetrical, while the usual affections of the parts just named are, on the contrary, unilateral. A great medical philosopher, Hughlings Jackson, considers tetany to be due to perverted cerebellar influence. He looks upon the brain as the centre for the ordinary voluntary movements of the limbs, and the cerebellum as the centre for continuous or automatic movements in the body. Now supposing the cerebral influence to be temporarily removed, the cerebellar influence would be unimpeded, and lead to rigidity of those muscles which during health are chiefly innervated by the cerebrum. I confess that this theory seems to me very far-fetched. Most physiologists consider not the cerebellum, but the medulla oblongata and the pons Varolii to be the centres for automatic movements, while the cerebellum is credited chiefly with being the centre for the equilibration of the body. This latter function is, however, in no way disturbed in tetany, and this appears to me a sufficient reason for rejecting Jackson's hypothesis.

It appears to me that some light may be gained by comparing tetany with another disease, in which we have likewise hardly any symptoms excepting in the muscles, and of which we know by dissection the true morbid anatomy. This is infantile paralysis, as caused by poliomyelitis of the anterior gray matter of the cord. In such cases we have not infrequently symmetrical paralysis of certain groups of muscles, just as in tetany we have the opposite condition, viz., rigidity which is most frequently symmetrical, and which affects by preference certain groups of muscles, leaving others intact. In infantile paralysis, which is a structural disease, we have chiefly paralysis of extensors and abductors; while in tetany, which I believe to be a functional disease, we have rather an affection of the flexors and adductors. The nutritive centres of these groups of muscles we know to be large cells in the anterior cornua of the cord; and it is to an undue and exalted state of excitability of these cells that it seems to me most reasonable to refer the symptoms of tetany, just as we refer to destruction of these cells the opposite symptoms of paralysis in the group of muscles for which we know them to be the centres. The localization of the trouble in the gray cells of the anterior cornua would then have to be sought in the lumbar, dorsal, or cervical region of the cord, or in the motor nuclei of the medulla oblongata, in accordance with the localization of the symptoms in the muscles of the lower extremities, the body, the upper extremities, the neck, head, face, eyes, pharynx, and larynx. I confess that this seems to me the most natural explanation of the symptoms of tetany as they are seen clinically. Why irritation should in these cases affect more particularly the anterior gray cells of the cord and bulb, is, of course, quite as inexplicable as why it should affect certain gray centres in the brain in cases of epilepsy; but for the present all these final reasons altogether escape our grasp.

The *diagnosis* of tetany is not always easy, except in very pronounced or typical cases. Buzzard, a careful observer, has recorded a case as one of tetany, which was evidently, from his own description, one of hysterical contracture. The patient was a Jewish girl, aged ten, who had suffered for three weeks from persistent tonic contraction of the flexor muscles of the upper and lower extremity; there was some œdematous swelling, and over the knuckles a slight flush of redness, which made the case look like one of acute rheumatism. No intermission of symptoms was observed, nor did the muscles become relaxed during sleep. In a day or two, however, she began to improve, and had no return of the spasm. The chief feature of tetany therefore, viz., the intermittent or paroxysmal nature of the muscular spasm, was absent, and the case cannot, therefore, be said to have been one of tetany. We have, indeed, in the diagnosis of this disease, to rely chiefly upon the paroxysmal occurrence of the spasms, the peculiarity that they spread in a direction from the periphery to the centre, on Trousseau's symptom of potentiality of spasm, which is elicited by compression, and on the electrical and mechanical convulsibility of the nerves and the muscles.

It is not likely that tetany should ever be confounded with epilepsy, as there is never any loss of consciousness in the former, and the whole group of symptoms of the epileptic fit is totally different from that of tetany. In Jacksonian epilepsy the symptoms are likewise widely different, and I should not refer to it if I had not known of a case in which this mistake was made by a practitioner. I will, therefore, say that in Jacksonian epilepsy there are tonic or clonic spasms, which generally affect, not symmetrical parts, but one upper, or one lower extremity; that they begin most frequently in the fingers, and travel from there upward to the face, and sometimes end in general convulsions; that after the fit there is paresis in those parts which have been convulsed, and that this paresis eventually merges into paralysis; that, where general convulsions occur, consciousness is lost; and that after the parts have become paralyzed, they are still liable to be convulsed. In addition to these symptoms we generally find also headache, optic neuritis, and vomiting, pointing to the formation of a tumor in the brain, or some allied structural disease of the organ.

Spinal meningitis has also been occasionally mistaken for tetany; yet the difference between the two conditions is likewise very striking. In meningitis we have fever, severe pains in the back; no such periodical remissions of the muscular spasms as in tetany; no Trousseau's symptom; and no increased excitability of the nerves to electrical or mechanical tests; and frequently headache, vomiting, and a small and often slow pulse. Some forms of *acute rheumatism* have been confounded with tetany, but attention to the points which I have repeatedly named as characteristic of tetany will always settle the question. In some forms of *ergotism* spasms have been observed which resemble those of tetany; but ergotism is habitually endemic; it is generally connected with symptoms of spinal degeneration, such as loss of knee-jerk, lightning pains, impaired coördination, and not unfrequently with epileptiform convulsions. Localized convulsions, such as histri-

onic spasm, torticollis, and convulsions in some individual muscles of the extremities, have also been occasionally described as tetany, but only from ignorance. Lastly, *tetanus* affects more especially the muscles of the jaw, tongue, pharynx, larynx, the neck, body, and the abdomen; reflex excitability is increased throughout the system; when the extremities are affected, it is chiefly the extensors; and the fingers and hands, which suffer more particularly in tetany, are spared in tetanus.

This seems to be the most fitting opportunity to speak of tetanilla, or Friedreich's paramyoclonus multiplex, as another form of muscular spasm which is not very uncommon in practice. I have seen the complaint especially in neurotic subjects, frequently with a history of masturbation and inherited nervous affections; and between the ages of fourteen and fifty-four. All the patients were males, and no particular exciting cause could be discovered. It differs from tetany chiefly by the convulsions being clonic, and by the absence of prolonged muscular rigidity, and of Trousseau's symptom. The convulsions are, moreover, generally symmetrical; they cease during sleep, and do not impair motive power or coördination. The nutrition and electrical reactions of the muscles are normal, but their reflex excitability is increased, the knee-jerk more especially being greatly exaggerated.

The degree of spasm varies considerably, being in some cases slight, and in others of considerable severity; in some temporary and in others almost incessant. All the muscles of the body may be affected, either simultaneously or successively. The spasm very commonly affects the adductor of the thumb and the interosseous of the first finger, so that a movement as that of holding the pen for writing is produced, and the bellies of these two muscles are distinctly seen to contract under the skin. Each contraction lasts five or six seconds, is entirely painless, and is presently succeeded by a variable number of other contractions, of which, however, there are rarely more than six or seven. After this there is an interval of rest, and then a further similar set of contractions. Other muscles which suffer frequently are the deltoid, the rectus femoris, the flexor muscles of the legs, the orbicularis of the lips and eyes. Of the latter muscles, generally only small portions are affected; for instance, the parts immediately adjoining the commissure of the lips, which are spasmodically contracted for a few seconds, then relax and repeat this performance five or six times consecutively, after which the muscle is quiet for a few minutes, and then begins to play again.

In other cases the spasm is much more violent, and spreads over a much larger number of muscles. There may be a more or less constant clonic convulsion in the muscles of the face, neck, chest, and abdomen, as well as of the limbs, and which is occasionally intensified by more powerful contractions of individual muscles, by which the head may be suddenly pulled to the side or backward, the eyelids closed, a sudden inspiration like singultus may be caused, and arms and legs thrown about. Perfect rest generally eases the spasms, while walking, using the hands, etc., is apt to increase them; and the patient may, therefore, be more or less disabled from following his occupation.

In one of my cases, that of a cabinetmaker, aged twenty-six, the right upper extremity was the exclusive seat of these clonic convulsions, which were quite sufficiently strong to throw the limb about in all directions, generally lasted two or three minutes at a time, were succeeded by four or five minutes' rest, and then began again. This man was utterly unable to earn his living through this most annoying affection. But it is chiefly the influence which the recurrence of such symptoms has on the mind of the sufferer that is of importance. One of my patients, who suffered in this way, had been told that it was a sign of beginning progressive muscular atrophy; and as he had suffered from syphilis, and was in a low state of health, this prediction made him quite hypochondriacal. Another patient, a medical man, who had read about Jacksonian epilepsy without having seen a case of it, believed that these clonic spasms were the first symptom of tumor of the brain, and that he was on the high road to become blind, epileptic, and imbecile. A third patient, likewise a medical man, had given up a large practice on this account, and gone abroad, being convinced that he was suffering from brain disease.

It is, therefore, important to know the differences which exist between the muscular twitches seen in progressive muscular atrophy, the spasms observed in Jacksonian epilepsy, and the clonic spasms of tetanilla or paramyoclonus multiplex.

The twitches or fibrillary motions of muscular fibres which are seen in patients suffering from progressive muscular atrophy, are generally of a sluggish and worm-like description. There is nothing sudden or actually spasmodic about them, and as they affect more or less individual fibres only, they are not in general sufficiently powerful to cause movements of the limbs or any parts of them. They come and go, are easily excited by passing the finger-nail over the affected limb, or by exposure to cold, and are essentially diffuse in character. They must be considered as a sign that degeneration has been set up in the muscular fibres, and have in general a bad prognostic significance showing that the disease is progressing. I need not further dilate upon the complete difference which exists between them, Jacksonian epilepsy, and tetanilla. The spasms of the latter are certainly not forerunners of any serious cerebral or spinal disease, for in one case which I have seen, they first occurred at sixteen years of age and subsequently at various times; at fifty-four years, however, the patient was still in good health, although occasionally subject to attacks of this kind, which sometimes lasted for a few weeks, and then ceased. All my other cases have recovered. These spasms, I believe, to be owing to a similar, although much slighter degree of irritation in the giant cells of the anterior gray matter of the cord than those of tetany.

The *prognosis* of tetany is generally not serious, except in very young children who have no power of resistance, and where spasm of the glottis or general convulsions are often so easily induced. It is also not favorable in persons who are extremely cachectic, and reduced in strength. In most cases,

however, tetany is not a dangerous complaint, and the patients recover in two or three months, more especially if placed in favorable circumstances.

For the *treatment* of tetany, Trousseau recommended bleeding and cupping of the spine; yet he mentions a case in which, by bleeding, the affection was made much worse and more general. At first the patient only suffered in his hands, so that the fingers were clenched and useless; but after the bleeding, the other parts of the limbs as well as the muscles of the body became affected, so that he sat quite motionless, and could hardly speak or breathe. In the present day bleeding is not likely to be resorted to, more especially as the patients are habitually in a state of exhaustion, through persistent diarrhœa, or when convalescent from acute disease. Just on the contrary it should be our endeavor to build up the constitution of the patient, by removing him, if possible, from his habitual injurious surroundings, by giving him nutritious and easily digested food, and such remedies as cod-liver oil, phosphorus, and arsenic. In recent cases in which exposure to cold and wet appears to have been the cause, the Turkish bath or a wet-pack, ammonia and opium should be used. Where diarrhœa is present, astringents, more especially opium and aromatic sulphuric acid, are to be given. Where worms are suspected, the usual anthelminthic remedies find their appropriate sphere of action.

As direct sedatives, hydrate of chloral and urethan act better than hypodermatic injections of morphia. Those highly popular remedies, iodide and bromide of potassium, have also been called to our aid, and have proved useful in some cases. Electricity has frequently been employed without success, when applied to the affected nerves and muscles; while the application of a large anode to the spine with the cathode at a distance, seems to be much more useful as having a sedative effect on the unduly excitable gray cells. For cutting short an individual attack of tetany, which threatens life through involving the larynx and diaphragm, I know nothing equal to a subcutaneous injection of pilocarpine, which seems to act like magic. As soon as profuse perspiration is established, the spasm ceases, and the patient is rendered comfortable.

The treatment of tetanilla should be chiefly mental. The patient must be assured that there is nothing serious the matter with him, and that his brain is unaffected. Electricity, used in the way just described, and Paquelin's cautery are other appropriate remedies, and rarely fail to cure an affection which, while it is apparently insignificant, yet suffices to make life utterly wretched for these patients, and has driven some of them close to committing suicide. Indeed, there is nothing really insignificant in the practice of our profession, as slight causes may lead to grave results, often through the agency of the imagination.

COCAINE IN OBSTETRICS.

By BARTON C. HIRST, M.D.,
ONE OF THE VISITING PHYSICIANS TO THE MATERNITY HOSPITAL.

In the wards of the Maternity Hospital I have had an opportunity of using cocaine in a sufficiently large number of cases to convince myself of its efficiency in alleviating, if not entirely annulling, the pain of the second stage of labor, especially in its latter part, when the child's head begins to distend the lower portion of the vagina and the perineum. To still the cramp-like pain of the first stage of labor, I believe chloroform will still be found to be best.

From the notes of a number of cases, I select the two following:

Case I.—A. B., primipara, æt. twenty-two; labor began at 3 A.M. July 27, 1886. As the cervix was being dilated, and the head began to descend, the woman showed signs of great suffering, threw herself about the bed, became livid in the face; at 5 P.M. the first application was made; almost immediately the patient became quiet, and remained so till the birth of the child, of which she said she was hardly conscious; in all, there were four applications made from 5 P.M. to 8 P.M., the hour of the birth.

Case II.—Mrs. D., æt. twenty-four, primipara; labor began at 6 P.M. August 9, 1886. Os fully dilated at 1 A.M. August 10th. Child delivered at 5.55 A.M. As the head began to descend, and from then till the birth of the child, cocaine was applied every half-hour; for that length of time the woman, who was quite intelligent, said that the local anæsthesia was almost complete; at the end of that time, however, the effect of the drug seemed to wear off. The preparation used was an ointment of the strength of four per cent., applied with the finger, as evenly as possible, to the mucous lining of the vagina and to the skin of the perineum.

TWO CASES OF HEMORRHOIDS CURED BY INJECTIONS OF CARBOLIC ACID.

By GEORGE E. READING, M.D.,
OF WOODBURY, N. J.

My first experience with this treatment was a little more than one year ago, when a patient, Mr. H. V. R., presented himself to me with the statement that he had long been a sufferer from internal piles, and that while spending some time in Denver, Colorado, the previous winter, he had been operated upon by a surgeon, who injected something into the piles which made them grow smaller. Being summoned home suddenly, he came to me to have the treatment finished.

Upon looking up the method of treatment in Gross's *Surgery*, I found that it is passed by with the slight mention that it consists in injecting six or eight drops of the pure liquefied acid. I accordingly did this with the effect of causing great swelling with subsequent sloughing of the tumor and the formation of an ulcer, which, however, healed kindly in about a week.

The patient said that he experienced much more pain from the injection, which I practised, than from those used by his physician in Denver during his treatment there.

This was the state of my knowledge of this treatment until I saw, in the *American Journal of the Medical Sciences* for July, 1885, an article entitled "The Treatment of Hemorrhoids by Injection," by Charles B. Kelsey, M.D., of New York.

From that I found that my mistake had been in using too strong an injection, and that, for soft internal piles, such as my first case, solutions of the acid of from fifteen to thirty per cent. were quite sufficient, and would cause much less pain and swelling.

My next case was one which gave this treatment as severe a test as it will often be subjected to.

Mrs. M. E. H., aged 35, widow, consulted me on May 12, 1886, with this history. She had suffered from piles as long as she could remember, having frequent attacks of inflammation, during which she suffered intense pain while walking or at defecation.

Upon examination I found a tumor the size of a shelled walnut protruding from the anus. The patient stated that it had not been returnable for several years. The tumor had evidently undergone fibrous change, and was very hard and firm.

I made an injection of six minims of the pure liquefied carbolic acid, choosing this because of the great firmness of the tumor. At the end of four days I made another similar injection, and upon making my third visit, one week after the first, I found that the tumor had markedly decreased in size and had become much softer.

I now began the use of a fifty per cent. solution, and made two injections per week for three weeks (making eight injections in all), when the tumor had entirely disappeared; and this had occurred without confining the patient to bed for more than an hour or two after each injection, and throughout she had been enabled to attend to her household duties, including the care of two children. The patient voluntarily stated that she had actually suffered less during the four weeks which the treatment lasted, than she had the preceding four.

For the details of this method of treatment I refer the reader to Dr. Kelsey's article.

MEDICAL PROGRESS.

Chorea cured by Gymnastic Exercises during Hypnotism.—Dr. Riccardo Pari (*Lo Sperimentale*, July, 1886) gives a very careful and detailed account of a case of chorea in an Italian girl æt twelve. When it came under his notice it was not otherwise remarkable except that it had lasted for four years. It came on after a sharp attack of scarlet fever, and there was no accompanying rheumatism or hysteria of any sort. Careful hygiene had been kept up, and treatment by electricity, tonics and arsenic, fully tried. When examined in October, 1885, there was no anæmia, no cardiac abnormality, or other morbid physical signs beyond moderately severe bilateral chorea. In recent medicine there are some cases of chorea cured by suggestion in hypnotism, and this was first tried by Dr. Pari. The girl was hypnotized by making her gaze fixedly at something in her hand, and it was strongly urged upon her when she was in the hypnotic condition that she should have no more chorea. Two such attempts had no success, which was ascribed partly to her distrust in all methods of cure after her long experience. Then it was remembered how useful gymnastics had been in the cases of Hasse, and at the third hypnotic sitting this idea was taken up, and she was ordered to hold out her arm and keep it still. There was slight tremor after six or seven minutes (when the muscles in a normal state generally begin to grow exhausted), but she was ordered to keep it still, and succeeded in doing so for much longer. In subsequent sittings, she obeyed orders to keep both arms outstretched for a quarter of an hour without tremor, to walk quietly, to stand still in all varieties of positions, first on one leg, then on the other, etc. Between the sittings there was gradual improvement, and after twenty of them she was quite well.—*The Practitioner*, October, 1886.

Use of Cold Inhalations in Fever.—Woitkewitsch records the treatment of fifteen fever patients by inhalations of cold air. Eleven of the patients suffered with typhoid fever, one with pleuritis, and one with pneumonia. The observations were seventy-one in number. The air respired was cooled by a special apparatus to temperature from 25° to 31° F. The duration of each application of the treatment was from fifteen minutes to three-quarters of an hour. The author's conclusions are as follows:

1. The patients' temperature was diminished but little by this treatment, and only for a short time.

2. The frequency of the pulse and respiration is notably diminished.

3. The general condition and sleep are temporarily improved.

4. The symptoms of bronchial catarrh were diminished to a remarkable degree.

5. No harmful results of this treatment were noted in any case.—*Centralblatt f. d. gesammte Therapie*, Aug. 1886.

The Decomposition of Ergotine Solutions.—As the result of elaborate bacteriological studies, Engelmann, of Kreuznach, presents the following conclusions:

1. Pure ergotine, unmixed, and dispensed in sterilized glass, may be preserved almost indefinitely.

2. Aqueous solutions of ergotine undergo a more or less speedy decomposition. This is due to the action of microörganisms.

3. Such solutions, when introduced subcutaneously, induce varying degrees of inflammation.

4. The addition of antiseptic agents to such solutions, as ordinarily practised, only delays the decomposition.

5. In order completely to prevent the development of living ferments, the antiseptic must be added in quantities which are directly irritating, and which, in frequent use, are not indifferent in their action upon the organism of the patient.

6. Ergotine solutions may be quite far advanced in decomposition before the eye can detect such change.

7. Ergotine may be most advantageously administered subcutaneously, when dissolved in water previously sterilized by a half hour's boiling.

8. The solution may be best effected in the syringe itself.

9. The distilled water of the apothecaries usually contains bacteria, often to such an extent that from a single drop there may be cultivated upon the gelatine plate many thousands of colonies.

10. In all solutions of drugs to be used subcutaneously,

it is therefore advisable that the water should be sterilized by prolonged boiling just previous to its use.

11. The decomposition of pure ergotine has been found to be due to bacterial impurities on the glass vessels used. A large number of microörganisms cause decomposition in the solutions; the ordinary bacteria of decomposition, however, are the most active.—*Deutsche medicinische Wochenschrift*, Sept. 30, 1886.

THE DIETETICS OF PULMONARY PHTHISIS. — DR. ALFRED L. LOOMIS writes as follows in the *Journal of Reconstructives* for October, 1886:

Some of the most important rules which govern the dietetics of phthisis may be formulated as follows:

1. Every phthisical patient should take food not less than six times in the twenty-four hours. The three full meals may be at intervals of six hours, with light lunches between.

2. No more food should be taken at any one time than can be digested easily and fully in the time allowed.

3. Food should never be taken when the patient is suffering from bodily fatigue, mental worry, or nervous excitement. For this reason, midday naps should be taken before, not after, eating. Twenty to thirty minutes' rest in the recumbent posture, even if sleep is not obtained, will often prove of more value as an adjuvant to digestion than pharmaceutical preparations.

4. So far as possible, each meal should consist of such articles as require about the same time for digestion, or, better still, of a single article.

5. Within reasonable limits the articles of any one meal should be such as are digested in either the stomach or intestine alone—*i.e.*, the fats, starches, and sugars should not be mixed with the albuminoids, and the meals should alternate in this respect.

6. In the earlier stages the amount of fluid taken with the meals should be small, and later the use of some solid food is to be continued as long as possible.

7. When the pressure of food in the stomach excites cough, or when paroxysms of coughing have induced vomiting, the ingestion of food must be delayed until the cough ceases, or an appropriate sedative may be employed. In those extreme cases where every attempt at eating excites nausea, vomiting, and spasmodic cough, excellent results are attained by artificial feeding through the soft rubber stomach tube.

8. So long as the strength will permit, assimilation and excretion must be stimulated by systematic exercise, and when this is no longer possible, the nutritive process may be aided by passive exercise at regular intervals.

The following may serve as a sample menu for a day in the earlier stage. The meat soup is made by digesting finely chopped beef (1 lb.) in water (Oj) and hydrochloric acid (5 ℥) and straining through cheese cloth.

Menu.

On waking.—One-half pint equal parts hot milk and vichy, taken at intervals through half an hour.

8 A.M.—Oatmeal with abundance of cream, little sugar; rare steak or loin chops with fat, cream potatoes; soft-boiled eggs, cream toast; small cup of coffee, two glasses of milk.

9 A.M.—Half ounce cod-liver oil, or one ounce peptonized cod-liver oil and milk.

10 A.M.—Half pint raw meat soup; thin slice stale bread.

11–12.—Sleep.

12.30 P.M.—Some white fish; very little rice; broiled or stewed chicken; cauliflower; stale bread and plenty of butter; baked apples and cream; milk, Kumyss or Matzoon, two glasses.

2 P.M.—Half ounce cod-liver oil, or one ounce peptonized cod-liver oil and milk.

4 P.M.—Bottle Kumyss or Matzoon; raw scraped beef sandwich.

5.30–6 P.M.—Rest or sleep.

6 P.M.—Some thick meat or fish soup; rare roast beef or mutton; spinach; slice stale bread; custard pudding; ice cream.

8 P.M.—Half ounce cod-liver oil, or one ounce peptonized cod-liver oil and milk.

9–10 P.M.—Pint iced-milk; cup meat soup.

1–2 A.M.—Glass milk, if awake.

ACORN COCOA IN THE TREATMENT OF DIARRHŒA AND VOMITING IN CHILDREN.—Acorn cocoa is a preparation of ordinary cocoa powdered and freed from fat, to which are added the soluble parts of roasted acorns without cellulose, and a little sugar and roasted flour. Liebreich suggested this combination, and that it should be tried in the treatment of diarrhœa and vomiting of children, and it was found that of one hundred and two cases of diarrhœa with vomiting only six died, and the remainder recovered in from one to eight days. This combination is now manufactured as a substitute for tea coffee, or cocoa, and is refreshing, tasty, and nutritive even for adults. DR. F. W. ELSNER (*Australasian Med. Gazette*, June, 1886) has also had a considerable experience with this remedy in this class of cases, and has obtained marked success by its use. His mode of administration was to mix a teaspoonful of it with cold water in a small cup, and then to boil it, constantly stirring, and this quantity is administered thrice daily by means of a spoon or feeding-cup. All other food and medicine is prohibited, and the quantity may be gradually reduced. Dr. Elsner has notes of twenty cases of continuous and exhausting diarrhœa with persistent vomiting, which had continued for three weeks in two cases, and for shorter periods in the others. In half the cases various remedies had been employed before the acorn cocoa was administered; in the others, however, it was the first drug given, and its effect was rapid and complete in each instance, and it never took more than two days to bring about improvement, while twelve days was the outside limit of time in which a complete cure was effected.

SOLANINE.—GENEUIL has made an elaborate study of the physiological effects and therapeutic applications of solanine, and arrives at the following conclusions:

1. Solanine is a poison to the terminal plates of motor nerves. Its action is narcotic upon the medulla, cord, and trunks of both sensory and motor nerves.

2. Solanine may be prescribed without danger in relatively large doses. Its action is not cumulative.

3. It causes no cerebral congestion, even in the aged.

4. Its use is indicated in all diseases in which there is to be combated excitement, pain, or spasm. It has been employed with success in various forms of rheumatism, asthma, sciatica, and various neuralgias. The aggregate daily dose is from one to seven grains, by the mouth or hypodermatically.—*Bulletin Général de Thérapeutique*, September 30, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, OCTOBER 30, 1886.

THE BILOXI FEVER.

THE difficulty which exists in forming a judgment as to the precise nature of a fever which seems to have been prevailing in Biloxi, Mississippi, for the last two months; and the controversy which has occurred about it, illustrate phases of human nature with which sanitary officials of practical experience soon become familiar. Biloxi is a small town on the Gulf Coast, on the Mobile and New Orleans Railroad, lying nearly opposite to Ship Island. About the end of August last several cases of fever occurred there, with two or three deaths, and it was rumored that these were cases of yellow fever. An investigation was made by members of the Louisiana Board of Health, resulting in a decision that it was sufficiently probable that the disease was yellow fever to warrant the establishment of non-intercourse with the town. The local physicians, however, maintained that it was not yellow fever, and in this opinion Dr. Godfrey, of the Marine-Hospital Service, concurred, after a visit to the place. This opinion of Dr. Godfrey was accepted as final, the quarantine was raised, and the inhabitants of Biloxi were highly indignant at what they claimed was the entirely unnecessary injury which had been inflicted on the business interests of the town. For about a month nothing more was heard of the matter; but, within the last ten days, startling rumors began to appear in the press, to the effect that the fever had spread so as to affect nearly all the inhabitants of the town, that there were many deaths, that the dead were being buried at night for purposes of concealment, etc. It was also reported that the local physicians were divided in opinion as to the nature of the disease. Upon this the Louisiana Board of Health again declared quarantine against Biloxi.

Subsequent reports indicate that there has been much exaggeration in the recent rumors about the Biloxi fever, and, with our present knowledge, its precise nature must be considered as uncertain. Now, why is this? What is the reason that in the presence of over fifty cases of fever which has produced fifteen or twenty deaths, physicians should find themselves unable to agree as to whether the disease is specific yellow fever or not? and why is it that there is such general distrust of the opinions of local physicians, when these take the ground that the disease is not yellow fever? It would seem that one great reason for this uncertainty is the lack of complete and reliable clinical records, and of post-mortem examinations. If the physicians of Biloxi have kept proper temperature records, and records of the condition of the urine as regards albumen, there should be little room for difference of opinion after comparing such records of thirty or forty cases, and their publication would be the most satisfactory means of settling the question. That the decision as to the nature of a suspicious outbreak of fever at any point on the Gulf Coast must turn very largely on such records is well known to physicians in that locality, and hence the neglect to publish them when disquieting rumors arose, is in itself a suspicious circumstance.

It must be remembered that the inhabitants of a town thus affected, and the health authorities of neighboring towns and States look at the matter from almost totally opposite points of view. The first say, "You have no business to interfere with our commerce until you can prove that this is yellow fever." The second say, "It is our duty to act as if this is yellow fever, until you prove that it is not." Really the interests of both parties are one and the same, and demand the fullest publicity of details in such cases as this. The publication of mere opinions, that Dr. A. thinks it is malarial fever, and Dr. B. is sure that it is not yellow fever, have little effect in quieting apprehension, not nearly so much as the publication of the temperature records of three or four cases would do.

Fortunately it is now so late in the season that there is little reason to fear serious spread of the Biloxi fever, even if it be true yellow fever. Whether it be merely malarial fever or true yellow fever, the people and physicians of Biloxi would have done well to furnish full and accurate information to the public as to the nature and progress of the disease from the very commencement of the appearance of disquieting rumors.

TUBAL PREGNANCY.

IT must be admitted that our knowledge of the determining causes and of the diagnostic signs of tubal pregnancy is still far from complete; we are

prepared, therefore, to welcome any additional information that may be gained from a study of these cases. A valuable addition to the literature of this subject is made by Dr. Wyder, of Berlin, in the *Archiv für Gynäkologie*, Heft iii. Band xxviii. It is based upon a most exhaustive study of five cases, each presenting many interesting features, which have been minutely observed and carefully recorded. Indeed, the report might serve as a model to those members of the profession who, having an opportunity of seeing such cases, should wish to publish the results of their observation. Thorough reports, of single cases, although not conclusive in themselves, would, when taken in conjunction with many others, soon give us a mass of material from which we could formulate definite laws in regard to the etiology, diagnosis, and treatment of a condition as yet not fully understood, although its results are usually so disastrous, and the necessity for active interference on the part of the physician is often so urgent.

The fact that the profession is not yet in a position to diagnosticate extrauterine pregnancy with certainty, is well illustrated by five cases reported by Dr. Wyder Three were falsely diagnosticated, one, it is true, by a student; but his mistake was natural: there was a history of cessation of the menses for two months, an enlarged uterus, considerable hemorrhage, and a mass, which subsequently proved to be the decidua, was projecting from the external os. While waiting for the further progress of what was thought to be a case of abortion, the woman suddenly exhibited all the symptoms of internal hemorrhage and shock, and in a few minutes was dead. The post-mortem examination showed that there had been a tubal pregnancy, with rupture of the sac and escape of a large quantity of blood into the peritoneal cavity. A more careful examination during life would have revealed, of course, a tumor in the immediate neighborhood of the uterus, but to have differentiated this from a small cyst of the ovary, or from a simple collection of fluid in the tube, would have been difficult. Had the diagnosis been made, however, and had it been followed immediately by an operation for the removal of the tube, the woman's life would probably have been saved. As soon as the sac had ruptured, with the ensuing symptoms of internal hemorrhage and collapse, the diagnosis should have been made with some degree of certainty, and immediate laparotomy would have been the only measure offering much hope of relief. Of the two other cases in which the tubal pregnancy was overlooked, one was declared by staff-surgeon Bungeroth, of the Charité, to be an ovarian cyst, while the other in the clinic of Professor Winckel, then of Dresden, was diagnosticated, simply, as retrouterine hæmatocele.

Of these five cases, three recovered, one owing to an operation performed for what was supposed to be an ovarian cyst. The tumor removed from this last case, and the preparations from the two fatal cases, revealed some very interesting pathological conditions. In one case there had been undoubtedly an "outer migration" of the ovule from the right ovary through the abdominal cavity to the left tube; while in one of the others there had been an "inner migration" of the ovule from the left ovary through the left tube, across the cavity of the uterus, and into the right tube, where it had become impregnated. Only two well-authenticated cases of this kind have been reported,—one by Schultze, in the *Würzburger medicinische Zeitschrift*, 1863, Band iii., the other by Hassfurther, in his inaugural dissertation at the University of Jena.

Dr. Wyder's theory that the uterus is the "meeting place" of ovule and spermatozoa is opposed to the opinion held by the majority of the present school of German gynecologists, but he certainly presents strong arguments for his view of the case. The appearance of the cilia on the uterine mucous membrane at puberty, and their action from without inward, would seem to indicate that they are intended to assist the progress of the spermatozoa, while they prevent the too rapid descent of the ovule toward the cervix. On the other hand, the cilia of the tubes, which are present from birth, act in the opposite direction—that is, from the ovary toward the uterus—and this, in conjunction with the sinuosity of the passage and the peristaltic movements of the tubes toward the uterus, would seriously retard the progress of the spermatozoa, in spite of their inherent power of motion. Moreover, coitus usually taking place after, and not during menstruation, the spermatozoa will find the ovule already in the uterus, for it can be pretty clearly shown that the passage through the tubes by the ovules is accomplished within four or five days, while ovulation, as is generally admitted, occurs at the beginning of menstruation.

The well-known fact that coitus at any time may be followed by pregnancy, can be explained in two ways: either that the ovum, having reached the uterus, retains its vitality during a whole intermenstrual period; or that the spermatozoa retain their power of impregnating the ovule for some time after being deposited in the uterus. In this connection, Hausmann (*Ueber das Verhalten der Samenfäden in den Geschlechtsorganen des Weibes*) reports a case in which the spermatozoa were found in full activity eight days after the last coition. This subject is an interesting one, and presents a fine field for further investigation, which may, perhaps, prove that Dr. Wyder's theory is more nearly correct than the belief, at present prevalent, that the ovule becomes impregnated before reaching the uterus.

THE CREMATION OF TOWN REFUSE.

The satisfactory removal of town refuse would appear to be a problem most difficult of solution, if we may judge from the experience of American cities. And yet there is no valid reason why success in this important branch of civic sanitation should not be achieved, if proper skill and the necessary resources were devoted to the accomplishment of this object. Feasible plans embracing schemes for the inoffensive utilization or destruction by fire of these waste matters have been proposed, and, in some instances, have been adopted on a small scale, with a show of success, but no large city has hitherto ventured upon the experiment.

Under the present methods no satisfactory means exist by which dry refuse can be immediately and safely disposed of, and consequently our suburbs are burdened with deposits of decaying and fermenting matters which pollute the air with their foul odors, and otherwise give rise to grave complaints. Very recently public attention has been directed to this subject by the disgusting nuisance created in the outskirts of a prominent city by the improper disposal of kitchen refuse, and fresh interest has been imparted to the question of disposal by fire.

If sufficient revenue can be derived from the products of cremation to reduce the cost of this method within reasonable limits, the chances of its adoption will be greatly improved. There can be no doubt as to its superior advantages from a sanitary standpoint. The effort now being made on a large scale at Pittsburg, Pa., to test the practicability and advantages of cremating the entire refuse of a town, will be watched with intense interest, as the results of the experiment, if successful, will go a great way toward inaugurating a reform in methods which have hitherto been the opprobrium of the sanitary management of every city in the land.

POISONING BY OYSTERS.

A very interesting account of several cases of poisoning in which the results were directly traceable to the ingestion of stale oysters, is given by Dr. Bardet, in the October number of *Les Nouveaux Remèdes*.

On the first of last September, a vender of oysters passed through a small town in Brittany, and emptied his basket in selling to eight families. The first two families, who received oysters taken from the top of the basket, and presumably fresher than the others, suffered no harm. In each of the remaining six families, from one to four members were taken violently ill, in from fifteen to twenty-two hours, with colic, intense vomiting, and purging. The matters vomited contained bile but no food, showing that gastric digestion of two meals had been completed before the attack. Despite active treatment intense depression and atrocious colic persisted for several days. It seems clearly shown that the trouble was not due to putridity of the oysters themselves, for they were observed to be alive and apparently in good condition, though not of entirely agreeable taste.

The theory that these cases of poisoning were due to some alkaloid of decomposition, would seem to be negatived by the length of the interval between ingestion and illness. This point is one which clearly separates these cases from those of poisoning by mussels. The history, indeed, leads one to suspect the presence of some acute infection of bacterial origin, the incubation period of which would correspond with the interval referred to. Unfortunately, none of the toxic material was retained for study, and a clear field remains open for a most interesting series of experiments and observations upon the etiology of poisoning by oysters.

A REMARKABLE CIRCULAR.

A number of physicians in this city have recently received a circular signed by an "M.D.," as the director of a "maternity home" in New York, which seems to call for some public comment. This institution, of the existence of which we were not before aware, is one in which women, who are about to become mothers of illegitimate children, may get rid of all the inconveniences and responsibilities of motherhood for something more than $100; that is to say for an "entrance fee" of $75, and board at the rate of $10 a week. For the additional sum of $25 the "staff," who are said to be members of the County Medical Society and connected with the colleges and other public medical institutions of the city of New York, undertake to "remove" a child immediately after its birth, so that the mother "need not see it again." In addition to this tempting offer to those who are threatened with becoming the parents of illegitimate children, this circular contains the statement that "uterine cases" will be received at the rate of $25 a week, and that "a special fee will only be required for *capital operations*." To facilitate the complete and quiet accomplishment of the objects of this interesting institution, the circular states: "We are ready at all hours to send one of our physicians or nurses to any railroad depot or steamboat landing, or to *any* place in *any* State, to meet a person coming to our house; also to take charge of a child for adoption, upon receipt of the necessary expenses." These inducements are specifically offered to "unmarried females of respectable family," who are assured that their cases will be managed with perfect secrecy.

The thought which naturally arises after reading

this singular circular is simply this: If it does not propose the most cowardly crimes of this generation, namely, abortion and infanticide, it is very unfortunately worded; while, if this is what it is meant to do, we hope there is law enough, and decency enough, in New York city to break up such an abominable concern. We would also suggest to the New York County Medical Society that its friends would be pleased to hear that it is impossible that any of its members should actually be connected with the so-called "staff" of this institution.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Conversational Meeting, October 13, 1886.

Dr. Charles H. Burnett read a paper on

CHRONIC PURULENT OTORRHŒA: ITS NATURE AND TREATMENT.

(See page 477.)

Dr. Samuel Sexton, of New York, was introduced to the Society. He regretted that the instructive paper of Dr. Burnett could not allow us to go back a little and discuss some of the acute processes which precede chronic disease of the ear. He might perhaps be allowed to make one remark with reference to that matter. In all the cases of inflammation of the ear where we can look into the tympanic cavity and see the seat of the disease, we are generally looking upon a comparatively simple case, which heals rapidly if not too much interfered with by treatment. Where the atrium is thus affected alone, the inflammation usually heals rapidly, but this is not the case in those cases in which the attic of the tympanum is principally affected, where the seat of disease is almost entirely out of the range of view on looking into the ear. It is under such circumstances that we so often have a serious case to deal with, both in acute and chronic inflammations. In those cases where the attic is considerably inflamed, it will be found on looking into the external auditory canal, that the membrana flaccida is red and bulging, and that there is tumefaction of the superior and posterior wall adjacent, sometimes with effusion sufficient entirely to close the canal. It is in these acute cases that, if we make a free incision into the walls of the canal, and into the attic, we shall establish free drainage, and avoid a chronic case. This at least has been his experience. Where there is a run-down condition of the system the result may, of course, be somewhat different.

Dr. Burnett had gone over the subject so thoroughly that he should confine his remarks more particularly to the treatment of inflammation of the attic. The attic and the upper cellules constitute a portion of the upper air tract, and are very liable to inflammation. In the treatment of chronic purulent inflammation, which we have under consideration, the trouble lies with drainage, as it does in the management of a great majority of surgical affections. The compartment above the atrium, and behind the membrana flaccida, which is almost as large as the atrium itself, is cut off by the swelling of the lining membrane of the attic, and drainage cannot take place except through the Eustachian tube; and it is in these cases that we have the periodical gathering and breaking which is so common in protracted cases of middle ear disease. Every time the patient takes a head "cold," the membrane lining the parts is liable to become inflamed, and the space between the ossicles and the inner wall of the tympanum becomes closed, and secretions from above cannot escape. In studying these cases of incurable inflammation of the upper ear tract, he thought that benefit might be derived from an operation, and, six or eight months ago, he began performing this operation, which may be described as follows: In the first place he might say that we should not attempt this operation where the membrana tympanum remains to a sufficient extent to respond to aërial vibrations of sound in any effective manner. In these old cases, however, it will usually be found that the major portion of the membrana vibrans has been destroyed, so that there is no danger of injuring the hearing power of the patient. In these cases the membrana flaccida is usually considerably thickened, and the handle of the malleus is retracted against the inner wall of the drum-head, or, perhaps, partially, or entirely lost from caries. In the majority of cases, the stapes is detached from the long process of the incus. In these cases no harm can be done by excision of the ossicles, and much benefit may be derived by the operation. The first procedure then, consists in detaching the portion of membrana flaccida which remains, from that portion of the tympanic ring formed by the margin of the auditory plate. This is done with a knife that is so placed on the handle that it may be passed around close to the auditory plate with ease. Passing the knife further back, the chorda tympani may be detached on each side. Where the tensor tympani muscle remains, it may be readily divided. Although this step of the operation is simple, it is liable to be accompanied with considerable bleeding. Where there are many granulations in the tympanum, it is well sometimes to postpone the operation until they have been removed to a certain extent by treatment. In order to remove the malleus, he had an instrument made which answers very well. This is passed from behind over the ossicles, and they are drawn downward. When they come into view, they are seized with forceps and easily detached. Having removed these portions, it is well to scrape the attic thoroughly, and remove all carious bone. It will be found that mucous membrane remains on the inner side of the attic. This should be removed with a scraper of another kind, which is a modified form of that often used by dermatologists. Care is to be taken not to injure the oval or round windows while scraping. In these cases, the stapes is rarely found present, except so far as its base is concerned. At first he employed insufflations of salicylic acid after the operation, but he now makes no applications, simply keeping the parts clean. In one or two weeks the parts begin to clean up, and usually before three weeks have elapsed the part is completely covered with a sort of dermoid dry membrane. Where any diseased bone or polypoid tissue remains, as sometimes occurs in the antrum, it must, of course, be removed.

The hemorrhage is at times troublesome, but it is never of a serious nature, and is easily arrested by cotton tampons or by the use of very hot water. In regard to injury of the chorda tympani nerve, it may be said that

there is nearly always more or less disturbance of the function of taste, but in the course of a few weeks this disappears. In one or two cases there has apparently been a descending neuritis which has manifested itself by slight pain in the mastoid cellules extending into the face.

With regard to the treatment of attic cases where the membrana vibrans remains, we frequently meet with cases where the membrana flaccida alone is perforated and perhaps with a polypus presenting at this opening. These cases usually occur between the ages of twenty and forty. They seem to be a continuation of a chronic process in the attic where nature has done a great deal toward healing the parts. Where a polypus presents, the speaker has usually used the biting forceps and removed it, and followed this by the introduction of pure salicylic acid. He sometimes uses it dissolved in ether and applied on a cotton-wool carrier. This will often destroy the base of the polypus. In this way these cases may often be kept in abeyance, and sometimes entirely cured.

In reference to the dry treatment, he thinks that perhaps this has been carried too far. Where boracic acid is allowed to remain in the ear for a length of time it may become a source of irritation. He does not use this remedy as frequently as he formerly did.

These chronic cases, in his experience, are rarely attended with pain, and for that reason are more apt to be neglected. It is only when there is an exacerbation of the inflammation that attention is called to them. Sometimes a polypus becomes inflamed and may cause serious symptoms from pressure. He has seen facial paralysis caused in this way, as well as certain vertiginous symptoms which are quite alarming. Generally, on the removal of the polypus these symptoms disappear.

The question is often asked as to the advisability of leaving cotton in the canal in cases of chronic purulent inflammation of the middle ear. As a rule, he thinks that it is better omitted. So long as there is any hope of healing a perforation it is quite a different matter.

The use of cocaine has not been of as much service in otology as in other departments of medicine. He has tried it for the relief of pain in many operations without success. He has, however, used it with advantage after the removal of a polypus, or after the excision of the ossicles.

In closing his remarks, Dr. Sexton called attention to an instrument which he applied for operation in acute cases of periostitis of the canal and attic. The instruments usually employed are too small and not sufficiently strong to make the required incision. With this knife the incision can be readily made in the walls of the canal and through the membrana flaccida into the attic, thus establishing drainage in these acute cases. It is here that he thinks that the surgery of the future in otology lies. If we can make early incisions and give vent to the pus, we shall have few serious cases. He cannot recall the occurrence of a single case of mastoid disease, so called, where this treatment has been promptly adopted. We have been able to treat these cases much more satisfactorily since the introduction of the electric light. It is a difficult matter always to obtain proper illumination with the ordinary light.

Dr. Harrison Allen suggested that attention be given to that phase of the affection which pertain to a desquamative catarrh which simulates the purulent discharge from an old bone-fistule. When the low degree of vascularity of the temporal bone and all its belongings is considered, it becomes a matter of no surprise to find that the necrotic variety of chronic otorrhœa is probably more frequent than is generally supposed, for it is evident that a discharge may be necrotic without the presence of a tangible sequestrum. Should not the treatment of the discharge, he asked, be based upon the methods employed by the general surgeon in the case of ordinary bone-fistule? Practitioners, he thought, should be less timid in proposing incision of the mastoid region. Dr Sexton has shown the safety of ablation of the ossicles under circumstances which prove that broadly conceived plans of surgical interference are tenable in treating these and analogous conditions directly within the external meatus and its associated approaches to deeper structures.

The term "tubercular catarrh" is a misnomer, unless tubercle can be detected in the middle ear. He might be corrected by Dr. Burnett, but he ventured to say that no deposits of tubercle have yet been demonstrated in the mucous lining of the tympanic chamber. The presence of a purulent discharge from the middle ear of a tubercular subject, is a sign of impending dissolution.

Dr. George C. Harlan said that the plan of treatment which he had adopted in these cases was substantially that recommended by Dr. Burnett. He derived a little more assistance from the patients and their friends than Dr. Burnett is inclined to do. It is often inconvenient to see a chronic case of this kind every day. In the intervals between the patient's visits, he sometimes allows him or his friend to inject with a small syringe, a solution of borax, or boracic acid, or of chloride of zinc. This latter he frequently uses in the proportion of two to five grains to the ounce.

The treatment of those cases to which Dr. Sexton had alluded, has been extremely unsatisfactory. The operation proposed by Dr. Sexton seems to have a sound basis, and to offer some hope of a good result in this class of cases.

With reference to the so-called dry treatment, his experience has been much like that of Dr. Sexton. We should have a definite idea as to the class of cases in which this plan of treatment is to be adopted. He thinks that it is of doubtful utility where there is a considerable portion of membrane left. In such cases the powder cannot reach the seat of disease, and may occlude the opening, preventing the escape of discharge. Nor is it applicable where the discharge is thick or at all profuse.

Some years ago he reported two cases in which death was due to long-standing, uncomplicated, purulent aural catarrh. In one case the pus reached the brain through destruction of the roof of the tympanum, and there was an abscess of the cerebrum. In the other case, it passed through the internal auditory meatus, and produced an abscess of the cerebellum.

Dr. Samuel D. Risley had had no experience with the method of operation proposed by Dr. Sexton, but when a suitable opportunity presents itself, feels disposed to try it. These chronic discharges are not always due to pent-up discharges in the attic, but may be due to damming up of the secretions by the presence of granulation masses blocking up the narrow space between the

tympanic wall and the remaining rim of the tympanic membrane, which it is frequently found necessary to remove by the dry treatment, alcohol, or other applications, so that the pent-up secretions can escape into the external meatus.

The dry treatment still serves him a good purpose. It does not work well in all cases, but he considers it a great advance on former methods of treatment. He still feels disposed to use a pledget of well-selected cotton in the canal. It should not be thrust to the bottom of the meatus except when intended to act as a wick for the removal of the discharge. Properly used it prevents the entrance of dust, foreign bodies, and floating germs.

He wished to allude to the important relation which exists between these chronic discharges and the constitutional troubles from which the patient is suffering. He has a number of cases in which he can find none of the local conditions referred to. There is probably no special attic disease, but these patients suffer from lithæmia. In one instance there is pronounced gout. This patient will get entirely well, and then will have a recurrence of the swollen, tender joints. This will be followed by a discharge from the ears, preceded by the well-known pharyngeal conditions long recognized as associated with lithæmia. This will get better after an immense deposit of uric acid in the urine, or possibly an attack of indigestion. We have of late years come to recognize this relation in the etiology of pharyngeal disease. He is convinced that the disease of the middle ear in these cases of lithæmia, is intimately connected with the general dyscrasia.

Dr. Ralph W. Seiss said that it might be of interest, in reference to the prognosis of purulent otorrhœa to notice some experiments which Dr. Chrystie and himself had made on dogs. The operation consisted in making an incision behind the auricle, then an incision in the membrana tympani, and scratching the membrane of the middle ear, and rubbing into the scratch a small drop of chloroform. This set up a purulent otitis, which was allowed to continue from one to four or five weeks, when the dogs were killed. Some five or six dogs were operated upon. Of this number he thought four had ascending neuritis—having lost his notes, he could not speak positively.

Clinically, there seems but little to add. Sufficient stress has not been laid on the importance of treating the nose in these cases. Many cases occurring in children with a marked nasal catarrh, may be treated indefinitely with remedies directed to the otorrhœa, and receive no benefit. If, however, the affection of the nasopharynx is removed, the otorrhœa will often disappear without special treatment.

Dr. Charles S. Turnbull agreed with the author in nearly all that he had said. His experience had been the same with the dry treatment (boracic acid powder, etc). He agreed with him in his objections to the use of the syringe by the patient or his friends. There is danger even in permitting them to use instillations. He was pleased to learn that there is a chance for some surgery in otology, especially if it be of benefit in these cases. At the same time, he thought there was much guesswork about it. It looks all very well in a diagram, but he was sure that it cannot be performed with ease, or without risk. He considered the procedure heroic.

He has been successful in treating several cases of chronic inflammation of the "attic," by applying a saturated solution of nitrate of silver or carbolic acid to the attic on a cotton carrier, the extremity of which had been bent at a right angle.

With reference to pledgets of cotton or wool in the ear, he thinks that they do more harm than good. The small amount of dust, or other foreign material, kept out, does not overbalance the danger from corking up a pus-secreting cavity.

Those tuberculous cases in which the membrane "melts down," he has felt at a loss to explain, pathologically; but, nevertheless, as Dr. H. Allen has said, he feels that it seals the fate of the patient. In a paper before the State Medical Society, two years ago, he stated that he considered tubercular otitis to be incurable. He recently saw in a medical journal a short article referring to a unique case of exclusion of tuberculous ulceration of the mouth, gums, and lips, under the observation of Dr. J. Solis Cohen. He thought that this might possibly help to explain the manner in which the membrana tympani "melted down" so rapidly in these cases of tuberculous disease—*i. e.*, by similar extension through the Eustachian tube.

Dr. Louis J. Lautenbach said that in the treatment of these cases of ear disease he had employed two drugs which are comparatively new, one of which—the peroxide of hydrogen—was referred to to-night. This may be employed in connection with either wet or dry cleansing and can be used alone or with the dry treatment. It seems to be particularly valuable in cases where the discharge is loaded with pus and when the discharge is thick and ropy. In these cases its use, after water cleansing, is to decompose the adhering discharges, giving a clean surface upon which to apply a remedial agent. In cases of thin, watery, or mucous discharge, the peroxide occasionally cures. This remedy is to be used alone only when the ordinary treatment fails, its chief value being evident when used as a cleanser, preparing the parts for treatment.

In acute exacerbations of chronic purulent disease, as well as in acute cases, he had found osmic acid of great value for the relief of the excessive pain which so frequently is present. He had used this since the 30th of April. At that time he was treating a case of threatening mastoid disease. The man had been suffering with excessive ear pain for more than six weeks, blisters and leeching giving but temporary relief. The pain was excessive; no sleep night or day. Everything seemed without avail; aconite, atropia, cannabis indica, chloral, morphia were used in immense doses without result. Osmic acid having been referred to in a medical journal as having relieved the severe pains of sciatica, was used as a forlorn hope. At 2 P.M. he was given, hypodermatically, directly above the auricle, one-fifth of a grain, and at 4 P.M. the pain was gone. When he saw him in the morning he was astonished to find him without pain, and yet more surprised at the promptness of the drug's action. Since then he has used it upon five cases in doses of one-tenth to one-twentieth of a grain, and has found it to give relief. He had not found it necessary to give more than two injections to any patient.

In some cases of chronic suppuration he has found a small suction apparatus of value. He uses it only

when other treatment seems to fail to arrest the discharge. Apparently it is of no value except as a more perfect method of cleansing, exhausting the ear cavity of any moisture that may remain after the ordinary cleansing.

Dr. Samuel Sexton desired to say one word in reference to the criticism concerning the difficulty of this operation for the removal of the ossicles. Of course, it is not a very simple and easy operation, but it is entirely practicable, and anyone who is familiar with the anatomy of the parts may perform it safely. Very often the handle of the malleus, or long process of the incus, will be found lying on the inner wall of the tympanum, making it difficult to get the instrument behind them. But often by a little manipulation an experienced operator may succeed. He has performed it in over a score of cases, and in not one has there been reason to think that any harm was done. The cases have to be selected. If there is much vascularity, some of the work, of course, has to be done slowly, or the case may require two operations. The operation often requires from one-half to three-quarters of an hour for its performance.

There is one point to which he did not refer, namely, after excision of the ossicles the drum-head is not reproduced. In cases where the drum-head has been destroyed by sulphuric acid or other agents, there has, in some cases, been a complete return of the structure in the course of a few weeks.

In reference to a point mentioned by Dr. Allen, he would say that he had recently a case resulting fatally in which tubercles were found in the temporal and occipital bones. The middle ear was not examined.

Dr. Burnett did not wish his position with reference to operations on the mastoid to be misunderstood. If the cortex is diseased he thinks that it is perfectly proper to remove such diseased bone, but unless it can be shown that to operate upon a healthy cortex will prevent the advance of caries upon the inner wall, he would say that he does not know when trepanation of the mastoid should be performed. It remains to be shown that an advance of necrosis on the inner wall and into the lateral sinus can be prevented by such an operation. If pachymeningitis has ensued an operation on the mastoid is useless.

In regard to tympanic disease occurring in tubercular cases, he would simply refer to a paragraph which, for the sake of brevity, he intentionally omitted in reading the paper.

In using the dry treatment he had not met with any of the objections to which Dr. Harlan had referred. He has yet to see a case of mechanical blocking of the canal by the dry treatment. We must combine the dry treatment with some moist treatment. He never said anywhere that it should be relied upon wholly. There are cases where the syringe must be used, but it should be done by the surgeon. If the treatment is given into the hands of the patient, it will be much protracted.

With reference to the instrumental removal of granulations, he would say that he has never seen good results from this practice. If a granulation is snared off, it will return in a few hours. The granulations must be cauterized with chromic acid or dried up by the dry treatment, or by means of alcohol, which, by its affinity for water, squeezes the life out of the granulation. Cotton may be worn in dry ears but not in running ears.

The constitutional treatment of these cases goes without saying. He has not seen the cases referred to by Dr. Risley in which it was possible to connect so closely the gouty tendency with the aural trouble, as Dr. Risley appears to have been able to do.

He would be unwilling to rely on applications made with a bent probe in the treatment of attic disease. It would be difficult thoroughly to apply the treatment through a small perforation by such means.

He has employed the peroxide of hydrogen for several years. It simply breaks up the pus and is a great cleanser, and is of great service to the aurist on account of the tortuous passages which he must cleanse in order to treat the tympanum. Aspiration is he thinks unnecessary after the use of the peroxide, and if applied under such circumstances it practically amounts to cupping the ear.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 21, 1886.

The President, A. Jacobi, M.D., in the Chair.

GIFTS TO THE ACADEMY.

Dr. George A. Peters, Secretary of the Board of Trustees, announced that $5000, a portion of the sum of $20,000, the bequest of the late Dr. Beadle, which the Academy would ultimately receive, had now been paid.

He also announced that Mrs. Anna Woerishoffer, the widow of the late Mr. Charles F. Woerishoffer, had donated to the Academy the sum of $25,000; this being one-fourth of a memorial fund, in honor of her husband, which she proposed to devote to certain scientific and charitable objects. Dr. Peters read the letter which Mrs. Woerishoffer had sent accompanying the check for $25,000, and also the letter of acknowledgment which had been sent in reply.

Dr. Fordyce Barker offered a series of resolutions, thanking Mrs. Woerishoffer for her munificent gift, and making Mr. and Mrs. Woerishoffer Permanent Benefactors of the Academy, which was unanimously adopted. In offering these resolutions, Dr. Barker remarked that before very long he hoped to see the Academy in possession of a fund of not less than one million dollars, a fund which it needs to place it in the position which the scientific demands of the times require of it.

Dr. Francis Delafield read a paper on

PULMONARY EMPHYSEMA.

He commenced by giving a *résumé* of the varieties, causes, symptoms, physical signs, favorable prognosis, and treatment of emphysema usually given in the text-books; in which it is stated that those suffering from this affection are but little liable to become the victims of phthisis and pneumonia. He then remarked that the student when he got into practice for himself was often surprised to find that the characteristics of the affection, as it actually occurred, according to his observation, did not correspond at all with those set down for it by the great mass of authorities. He would find that it did not necessarily arise in connection with bronchitis, and that playing on wind instruments was not a common cause of emphysema. He would find

that the immunity from phthisis and pneumonia was open to question, and that barrel-shaped chests are not so frequently met with as he had been led to suppose. Moreover, if he made autopsies, he would find that the dilatation of the air-spaces or air-vesicles was by no means always proportionate to the severity of the symptoms that had been present during life.

It is true that chronic bronchitis and attacks of asthma are frequent enough; yet there are other cases in which such conditions are entirely absent, and substantive emphysema is essentially different from what the classical descriptions of it would lead us to suppose. It is, therefore, important to decide what we really do know, and what we do not know, about the disease. It is well, on the whole, to divide the varieties of emphysema, according to the recognized classification, into the interlobular or interstitial and the vesicular forms, and to divide the latter into senile, lobular, and substantive.

Senile emphysema is due simply to a senile change in the parenchyma of the lung, and when it is present there is no obstruction to the passage of blood through the lungs, and no dilatation or hypertrophy of the right side of the heart. Chronic bronchitis is often present, but the affection is not severe, and of no very grave import. In some instances substantive emphysema commences in the earlier portion of life, and as the patient grows older, senile emphysema occurs also. It is not always easy to distinguish between the two, and yet the distinction is very important; for, while substantive emphysema is a very serious affection, the senile variety, as had been mentioned, is not.

Dr. Delafield then went on to say that substantive emphysema is in reality a form of pneumonia. It is, in fact, an inflammation of the same type as that which so often attacks the endocardium, the inner coat of the arteries, the kidneys, and the liver. The walls of the ventricles are first attacked, and while some of them become thickened, others become thin. The dilatation, both of the vesicles and the air-spaces, varies in different cases, and is by no means proportionate in many instances to the severity of the symptoms present. In fact, many of the cases are overlooked at autopsies, because there is no dilatation of the air-spaces visible to the naked eye.

Later on, the emphysema spreads, and attacks other parts of the lungs, including the epithelial cells lining the air-spaces and the mucous membrane of the bronchi. The pleura also becomes thickened, numerous pleuritic adhesions form, and the whole condition is, in short, that of interstitial pneumonia. In the milder cases there is but little disturbance of the circulation of the blood; but in the severe cases this gives rise to the worst symptoms. The right ventricle of the heart becomes hypertrophied and dilated, and venous congestion and dropsy follow. The secondary symptoms are, indeed, the same as those of valvular cardiac disease.

Having referred to the various complications liable to arise, he stated that this affection is one that is very frequently met with in New York; coming on, as a rule, in individuals from forty to forty-five years of age. Hereditary influences are marked. The same causes are active in producing it as in the case of chronic endocarditis, chronic arteritis, chronic nephritis, etc. It is of more importance to recognize the cases of moderate severity than the very bad ones, because in the latter comparatively little can be done in the way of treatment. In the moderate cases there is no change in the shape of the thorax; though in old and aggravated cases the barrel-shaped chest is not infrequently present. The pulmonary resonance may remain unaltered for a considerable time.

Having spoken in detail of the physical signs present, Dr. Delafield said that the emphysema may continue for years without giving rise to any rational symptoms. The condition, however, can be generally recognized by taking into consideration the age and general condition and tendencies of the patient. There are other cases in which the presence of Bright's disease or cardiac trouble causes the emphysema to be lost sight of. The dyspnœa at its worst is constant and extremely distressing. In the bad cases there are also more cough and venous congestion, followed by general dropsy.

The disease may pursue a number of different courses. In the first place, a patient who has suffered a long time from winter cough and is always a little short of breath on making exertion, will at length develop spasmodic asthma. There will follow increasing dyspnœa, loss of flesh and strength, venous congestion, dropsy, and death. Another class of patients will be apparently entirely well, except when they have an attack of acute bronchitis. After a time, however, venous congestion, albuminuria, and dropsy will ensue, as in the preceding variety. Still another class will suffer for years from spasmodic asthma before the evidences of emphysema show themselves. Finally, there is a class of cases in which the symptoms are very slight for a long time; when venous congestion and the other grave symptoms will suddenly become developed. The behavior of the affection is, therefore, on the whole, very like that of the atrophic form of chronic Bright's disease.

In speaking of the treatment, he said that the same general rules, as regards hygienic surroundings, climate, mode of life, etc., which had a favorable effect on the progress of other affections of the same class, such as chronic Bright's disease, etc., are applicable in emphysema. It is a question of some importance whether the dyspnœa and asthmatic attacks which so frequently characterize it, are not due in reality to a contraction of the arteries and capillaries, since it is found by experience that many of the drugs which are the most serviceable in relieving these conditions, are those the physiological effect of which is to produce a relaxation of the walls of these vessels.

The conclusions arrived at by Dr. Delafield were somewhat as follows: Emphysema is not a local chronic disease due to excess of inspired air over expired air, or to fatty degeneration, but a chronic inflammation of the lungs; nor is the dilatation of the air-cells and air-spaces an essential part of the affection. The result of this inflammation is such an irregular thickening and thinning of the walls of the air-spaces as would naturally occasion the dilatation of some of them. The dyspnœa and general venous congestion are not due simply to the dilatation, but to the contraction of the pulmonary blood-vessels. Excessive bodily exertion is not the cause of emphysema. In the treatment the indications are to delay the progress of the chronic inflammation and to

overcome the contraction of the bloodvessels present. Chronic bronchitis is, of course, to receive proper attention.

[At the conclusion of the paper, Dr. Delafield exhibited, by the aid of a magic-lantern, a number of sections of lungs taken from different patients, illustrating the points referred to.]

Dr. E. Darwin Hudson, Jr., said that the author of the paper had given his ideas of emphysema from a pathological point of view. Personally he was more accustomed to regard it from its clinical aspect, particularly in connection with the physical signs to which it gives rise; although he had had the opportunity of studying the disease to a considerable extent in the deadhouse also. This post-mortem experience, however, was, of course, limited when compared with that of Dr. Delafield. He has always looked upon the account of emphysema of the lungs given by Waters, of Liverpool, as affording a very definite and accurate idea of the affection. In the paper of the evening Dr. Delafield had described other diseases, more particularly interstitial pneumonia, with emphysema. He (Dr. Hudson) was still of the opinion, however, that we had to take emphysema as a distinct type, and that it consists essentially in rarefaction of the pulmonary structure, as described in Reynolds's *Practice*, and other standard works. The clinical history of the disease has to be taken into consideration, as well as the pathological conditions found after death. It is very common for women at the climacteric period to become obese and develop emphysema, with the barrel-shaped chest so often described as characteristic of the affection. Here the condition could hardly be due to alteration in the anatomical structure of the lung; though no doubt this was the case in other instances. The results obtained from Voldenberg's apparatus, and more recently from Ketcham's pneumatic cabinet, throw considerable light on the nature of emphysema; which was shown to be a disease in a large number of cases in which there is a loss of elasticity and resiliency on the part of the air tubes and vesicles.

No disease is more perplexing to the practitioner than emphysema. It is too apt to be the case, as Dr. Delafield had remarked, that the student expects to find a uniform character in all the cases; while in reality there is great difference in different cases. For instance, in some the pitch of the resonance is high, while in others it is low.

It is, no doubt, true that in a certain number of the cases of emphysema the gouty diathesis is present, with interstitial disease of the kidneys, or other characteristic lesions; but there are a large number of other cases in which the affection is purely mechanical.

Dr. Charles Heitzman said it was some fifty years since Rokitansky gave to the world an accurate knowledge of emphysema, and that ever since then its pathological and clinical characteristics had been well known. It seemed to him that Dr. Delafield either had not seen a pure case of the affection, or had not demonstrated one. The sections which he had exhibited this evening were certainly not specimens from simple emphysema. As Dr. Hudson had stated, they were emphysema combined with interstitial pneumonia. It was, indeed, not a primary disease, but a secondary one. He had in his possession an ample number of specimens taken from cases of pure emphysema, and they were altogether different from those which Dr. Delafield had shown. His own father, who was now eighty-two years of age, was a good example of typical emphysema. As to the pathology of the affection, as interpreted by Dr. Delafield, viz., that it is due to contraction of the bloodvessels, he did not see why we should go to something which we could not prove for an explanation of the trouble. For himself, he was content to believe in the old view of the affection. As he had said before, the specimens shown were not examples of pure emphysema.

Dr. Delafield said that he was sorry that it had been supposed that he looked at the subject solely from a pathological point of view. He had intended the paper to have a clinical as well as a pathological bearing; and the ideas which he had tried to set forth in it were those which he had formed from a somewhat extended study of the disease, both during life and after death. It was hardly possible to dissociate the two sets of facts, and he did not know that he had anything more to add to what he had already said in the paper. The treatment which was found most effectual in emphysema was certainly fully compatible with the views which he had advanced.

Dr. Van Santvoord said that he had at present under observation two advanced cases of emphysema, which seemed to him to bear out the statement of the author of the paper that the affection is of great gravity in many cases; and since he had been in practice he had found out that many of the teachings in regard to emphysema, which he had heard when a student, are not born out by the facts. He then spoke of the great value, according to his experience, which caffeine had as a cardiac stimulant in these cases. The right heart is frequently embarrassed, and venous congestion is apt to occur long before it could be caused by tricuspid regurgitation, or at least before any tricuspid regurgitation could be recognized by the physical signs. He would like to ask Dr. Delafield his opinion in regard to the value of caffeine.

Dr. Delafield said that he thought caffeine a useful drug. It appears to stimulate the right side more than the left side of the heart, and the same is true of convallaria. Just as is the case in pneumonia, it is, therefore, indicated to stimulate the right heart in emphysema.

The President said that, according to the views which Dr. Delafield had expressed, the iodides which, as is well known, are in common use in this affection, are theoretically indicated in all those cases which occur in connection with chronic inflammation. The benefit which is afforded in chronic asthma, peri-bronchitis, etc., could only be explained on the ground that these agents act as absorbents. He would like to ask, therefore, whether, in every case of emphysema, iodide of potassium ought to do good, because it acts as an absorbent? Also whether all cases of emphysema are of the same character? There are some cases in which the affection comes on very suddenly, as, for instance, in connection with whooping-cough. To some extent the trouble is transient, and to some extent it becomes permanent, and the inflammatory element is not the prominent one.

Dr. Delafield explained that he referred only to chronic emphysema.

Dr. F. H. Castle said that of late calcium chloride,

which had been proposed a long time since in this connection, had been steadily growing in favor for the purpose of causing absorption of connective tissue products. He referred to the value in emphysema of remedies which relax the muscular coats of the bloodvessels, and said that he thought this had a direct bearing on the subject of the paper. For instance, the prompt relief afforded by nitrite of amyl would seem to indicate that the seat of the trouble is in the bloodvessels; for if the dyspnœa is due simply to dilatation, or to the presence of mucus in the air-vesicles, we can hardly account for the favorable action of this remedy.

Dr. Delafield said that he agreed with the President, that the iodide of potassium is one of the most valuable of our drugs in emphysema, and its action may well be supposed to be due to its effect on the bloodvessels, because it is a recognized fact that one of the effects of the iodides is to relax the smaller bloodvessels. Thus it is given in cardiac disease for its effect on the small arteries and capillaries. Another drug of the same class which is of great value is chloral hydrate, which acts in a similar manner. Large doses of chloral are extremely useful in acute attacks of dyspnœa, and small doses in chronic dyspnœa.

A PROPOSED BUILDING FUND.

Dr. C. R. Agnew gave notice of a proposed amendment to the By-laws establishing a building fund for the Academy.

NEWS ITEMS.

MONTREAL.

(From our Special Correspondent.)

Medico-Chirurgical Society.—At the annual meeting held October 8th, the following officers were elected:

President.—Dr. James C. Cameron.

Vice-Presidents.—Dr. George Wilkins, Dr. T. Johnson Alloway.

Secretary.—Dr. R. F. Rutlan.

Treasurer.—Dr. A. Lapthorn Smith.

Librarian—Dr. T. D. Reed.

College of Physicians and Surgeons of Quebec.—At a recent meeting of the Council of the College it was decided to increase the scope of the preliminary examination for admission to the study of medicine. The following compulsory subjects have been added to the already very extended list: elementary chemistry, mental and moral philosophy, and rhetoric. It is felt by the English-speaking members of the profession that the preliminary examination is already stringent enough, as evidenced by the great number of rejections, sometimes as high as sixty per cent. However, their French colleagues think that it is a step in advance and that it will reduce the number of entrances into the profession and so lessen competition. Philosophy being a subject taught in all the French schools and not in the English ones, it is considered by the English minority that the French majority are acting in rather an arbitrary and unjust way, but it appears that the Church demands the change in order to counteract the materialistic doctrines which are being taught in a certain powerful and well-equipped medical school; in this way they hope to protect their flock from that "horrible belief which is now so prevalent in old France and, in fact, throughout Europe," and which the teachers in the aforementioned school acquire when they go abroad to England, Germany, and elsewhere to qualify themselves more thoroughly for the positions they occupy.

After next year every person before being allowed to practise will be obliged to pass an examination in all branches of medical study before an examining board of the College of Physicians and Surgeons. No degree from a reputable British or Colonial university will, as heretofore, be accepted. This new regulation is to be enforced in order to weed out one or two weak colleges which have been granting degrees to irregulars and others throughout the province.

The Fever at Biloxi.—A press dispatch from New Orleans states that the excitement which followed the establishing of quarantine against Biloxi has died out, and the fears that were entertained that yellow fever would be brought to New Orleans from the infected town have passed away. Biloxi is still shut off from the world, and the quarantine against her will be maintained at all places until a heavy frost does away with all danger. The situation in the town is unknown. The telegraph lines have been working uninterruptedly and every newspaper in New Orleans has a correspondent in the place, yet not a word regarding the fever has any paper been able to get for several days. No doubt is entertained that the correspondents, who are residents of the town, have been terrorized and compelled to stop giving out reports.

An Epidemic of Pleuro-pneumonia in Chicago Cattle.—Dr. Salmon, Chief of the Bureau of Animal Industry, in his official report upon the outbreak of pleuro-pneumonia at Chicago, says:

On September 22 I visited the Phœnix and Shufeldt distillery stables in company with the State Live Stock Commissioners and the State Veterinarian. Post-mortem examinations were made on the carcasses of four animals, and in every case lesions were revealed which are considered by the veterinary profession the world over to be typical and characteristic of contagious pleuro-pneumonia. On several subsequent occasions I visited these same stables and witnessed the examination of other carcasses which presented equally plain evidences of the same disease. . . . The milkmen at first stoutly denied the existence of any disease among their cattle, but when the evidence became too strong to be longer contested, it was admitted that they had recognized the appearance of a lung disease in 1884. They at first attributed it to chemicals used in the mash by the distillers, also to feeding the slop too hot, but had finally concluded it was contagious pleuro-pneumonia and had been practising inoculation to lessen the mortality. It was soon ascertained that cattle had been removed from the infected distillery stables, driven over the streets of Chicago and allowed to pasture on the commons. . . . The inspection of city and suburban herds brought out the fact that the contagion had been widely disseminated, that diseased cattle had been running upon lots where many cattle grazed, and that practically we must consider all of the unfenced pastures and vacant lots on the west and south sides of

Chicago as infected, and all the cattle running at large as exposed. Most of the cases of disease found were chronic, and some of the herds presented plain evidence of having been inoculated. The inoculation, which has been extensively resorted to in Chicago, while it has lessened the losses, appears to be one of the means by which the contagion has been so widely spread. . . . With contagious pleuro-pneumonia prevalent in the neighborhood of Chicago—the great live stock centre of the country, from which cattle are constantly moving in all directions—it may be truly said that the cattle industry of this country has reached a crisis. It may be still rescued from this scourge if Congress at the coming session can be made to realize the necessities of the situation.

An Egyptian Medical Journal.—*El thifaa* ("the cure") is the name of the only medical journal published in Egypt. It is printed in Arabic, and published monthly. Its price is thirty-five cents a number. The principal contributors are Egyptians and Syrians. It has proved in every way a success.

Respiration at High Altitudes.—The August number of the *Alpine Journal* contains a statement of the results obtained by Dr. Marcet from many experiments on breathing while climbing at high altitudes. He first shows by experiments at ordinary altitudes and in a state of rest that some persons make much better use than others of the air they inhale, inasmuch as their exhalation is very rich in carbonic acid: this may be expressed by measuring the volume (at sea-level pressure and freezing temperature) of air inhaled to produce one grain weight of carbonic acid. Dr. Marcet himself had to breathe 15.5 litres of air, while two younger men needed only 13.7 and 10.8 litres respectively: the latter had a remarkable power of keeping his breath under water, and was little troubled in mountain ascents. Further experiments, conducted at various altitudes up to 13,600 feet, show, that, as a person ascends, he breathes fifteen to twenty-five per cent. less air (reduced, as above, to standard pressure and temperature) to produce a given weight of carbonic acid: the action of air on the blood in the lungs seems, therefore, to be facilitated with decreasing density. It is evident that this will materially diminish the quickness of breathing that would otherwise be required in rarefied air.

European Precautions Against Rabies.—An English Order in Council has been issued, under the Contagious Diseases (Animals) Act, dealing with the regulation and control of dogs. The order, which is cited as "The Rabies Order of 1886," provides for the extension of the Acts of 1878 to 1886, so that "dogs shall be animals and rabies shall be a disease" for the purposes of those Acts. The duty of the police on notice of rabies is defined, and special regulations are laid down for the guidance of local authorities as to the muzzling of dogs and the disposal of stray dogs, and as to the movement of dogs affected with or suspected of rabies. The order extends to England, Wales, and Scotland, and came into operation on October 1st. The following note on the steps taken in continental countries for the extermination of hydrophobia, has been sent by a correspondent to a contemporary, and will be read with interest. Writing from Geneva, he says: "The outcry against the order of Sir Charles Warren, with reference to the control of dogs in the British metropolis, is causing some little astonishment, in this as well as in other continental countries. The law relating to dog-muzzling which is periodically enforced over here is not unpopular, and statistics seem to show that in most cases it has considerably lessened the terrible disease of hydrophobia, and in some it has stamped it out altogether—notably in Norway. There, a few years ago, there was an outbreak of rabies; but as it was not considered serious, the law was not exercised, and the disease seemed to die out. The following year, however, there was a serious recrudescence, and an order was at once issued, that all dogs were to be securely muzzled, that no dogs would be allowed to be imported until they had been officially certified as being free from disease, and that any dog found without a muzzle would be instantly killed. This order was put into execution with an iron hand, and was kept in force for a whole year. The result is, I believe, that there has not been a case of hydrophobia or rabies in the country since. In Italy, a still more summary mode of procedure is in force. An edict goes forth that dogs are to be kept under control, which there means that they are not to be allowed out at all unless led by the owner. There is no ambiguity as to what 'proper control' signifies. In all towns and villages men go about with a cart covered with a net. The men are armed with long sticks, to which a formidable knife is attached. If a dog is met 'not under control,' he is instantly seized and pitched into the cart, the net holding him prisoner. If the wretched animal attempts to bolt he is pursued, the long sticks and knives are brought into play, and, in nine cases out of ten, the hacked and mutilated carcass of the poor animal is tossed into the cart, and as more frequently than not the creature is not killed outright, its suffering may be imagined. To all travellers and residents in Italy these ghastly loads are common and painful sights. When the cart is full it is taken to a specially appointed place, and the animals are despatched. This mode of stamping out hydrophobia is revolting, but it is certainly effectual, since the disease is very rare in Italy. In France and Germany periodical muzzling is also strictly enforced, and very little mercy is shown to animals found without the muzzle. In Switzerland, where there is a perfect craze for keeping dogs, every canton can issue an order at any moment, compelling owners to muzzle their dogs; and the instant rabies is suspected, the law is rigorously put in force—often on very insufficient grounds, and it is no uncommon thing for dogs to remain muzzled in some cantons for six months out of every twelve. During the time the order is in force, spies are specially employed to keep a lookout for unmuzzled curs, and every dog so found, no matter what his value may be, is seized, kept for a few hours, and if not then claimed, is despatched; while every gendarme and garde de la paix is empowered to kill a dog instantly, wherever it may be, if it shows the slightest signs of madness. Though the law might unquestionably be more humanely carried out, it must be confessed that hydrophobia has become very rare in this country."

Medical Women in India.—A meeting of the National Association for Supplying Medical Aid to the Women of India was held at Simla on Sept. 29, Lady

Dufferin presiding. The reports received from the various provinces were highly satisfactory. The main object now was to establish the association on a permanent footing, for which purpose further funds were required. The estimate for next year's work showed a surplus: but, before the financial condition of the undertaking could be called thoroughly satisfactory, it required a lakh and a quarter more capital. Sir C. Aitchison gave an account of the work done in the Punjab. He said that the province was not rich. The few wealthy men had given what they could, and the movement was spreading among other classes.

A Defence of Tea.—An article which appeared in our columns some weeks ago, says the *Lancet*, condemning the excessive use of tea as injurious, has come under the observation of the Chinese at Shanghi, and a recent copy of the *Shên Pao*, a local native paper, contains a leading article which is evidently founded upon a misconception of the tenor of our remarks. The writer states that for several hundred years no one has heard that the habit of tea drinking is an injurious one. Why should it suddenly become so to-day? Moreover, tea has been drunk in China for thousands of years without any apparent ill effects. Our contemporary then proceeds gravely to discuss the various sources from which this imagined danger may arise. The water cannot, it argues, be injurious, for it has been boiled, and as adulteration of the leaves has practically ceased, how can the pure article be injurious when the adulterated article which was exported and consumed for years had no evil effects? Another reason for the appearance of the article condemning tea has been suggested to the contributor to our contemporary, and although in his opinion it is not deserving of immediate and implicit belief, yet, looking at all sides of the question, he would not venture positively to state that it is devoid of truth. "It is said that a foreign doctor discovered a spring of water possessing valuable medicinal properties, and that after mixing some kind of preparation with it he put it up in bottles, like the lemonade and soda water used by foreigners here; that as the demand was not very brisk, he originated this story about the injurious properties of tea, with a view of increasing the sale of his preparation." Despite, however, such a low estimate of the honor of foreign medical men, the writer concludes with the expression of high admiration for their professional skill, which he contrasts with that possessed by the native faculty, much to the latter's disadvantage.

The Teeth from a Medico-legal Aspect.—The identification of dead bodies and criminals is sometimes a matter of much perplexity. For instance: the features of a dead body may be distorted or destroyed; the clothes changed or unrecognizable; and no ordinary circumstances left to make identification clear. Some such a case occurred in Michigan. A man was found in a lake murdered. As the coroner was about dismissing the case as "unidentified," the neighboring dentist had the curiosity to look into the mouth. In a moment he said: "I have a chart of that mouth in my office," and though he could not then remember the name, he soon found it by referring to his chart book. It resulted in tracing the murderer.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 19 TO OCTOBER 25, 1886.

Webster, Warren, *Major and Surgeon.*—Leave of absence on account of sickness further extended one year, on account of sickness.—*S. O. 244, A. G. O.*, October 20, 1886.

Billings, J. S., *Major and Surgeon.*—Granted leave of absence for eight days.—*S. O. 246, A. G. O.*, October 22, 1886.

Corson, Jos. K., *Captain and Assistant Surgeon.*—Granted leave of absence for one month, to take effect when his services can be spared.—*S. O. 246, A. G. O.*, October 22, 1886.

Weisel, Daniel, *Captain and Assistant Surgeon.*—Relieved from duty at Fort Fred Steele, Wyoming, and ordered to proceed to and take station at Fort McKinney, Wyoming, reporting to the commanding officer of that post for duty.—*S. O. 135, Department of the Platte*, October 15, 1886.

Moseley, E. B., *Captain and Assistant Surgeon.*—Relieved from duty in the Department of the Columbia, and ordered to report in person at headquarters, Division of the Pacific, for assignment to duty.—*S. O. 87, Division of the Pacific*, October 16, 1886.

Taylor, B. D., *Captain and Assistant Surgeon.*—From the Department of the East to Columbia Barracks, Ohio.—*S. O. 244, A. G. O.*, October 20, 1886.

Tesson, L. S., *Captain and Assistant Surgeon* —From the Department of Texas to the Department of the East.—*S. O. 244, A. G. O.*, October 20, 1886.

Barrows, C. C., *First Lieutenant and Assistant Surgeon.*—From the Department of Arizona to the Department of the East.—*S. O. 244, A. G. O.*, October 20, 1886.

Egan, P. R., *First Lieutenant and Assistant Surgeon.*—From the Department of Arizona to the Department of Texas.—*S. O. 244, A. G. O.*, October 20, 1886.

Walker, F. V., *First Lieutenant and Assistant Surgeon.*—From the Department of the East to the Department of Texas.—*S. O. 244, A. G. O.*, October 20, 1886.

Carter, E. C., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for six months, with permission to apply for an extension, and to go beyond the sea, to take effect when his services can be spared.—*S. O. 244, A. G. O.*, October 20, 1886.

Edie, Guy L., *First Lieutenant and Assistant Surgeon.*—Having returned from detached service in the Department of Arizona, will join his station at Fort McIntosh, Texas.—*S. O. 144, Department of Texas*, October 13, 1886.

Chapin, Alonzo R., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Laramie, Wyoming, and ordered to Fort Washakie, Wyoming.—*S. O. 137, Department of the Platte*, October 19, 1886.

Black, Chas. S., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two months, on a surgeon's certificate of disability, to take effect when his services can be spared.—*S. O. 244, A. G. O.*, October 20, 1886.

Ives, Francis J., *First Lieutenant and Assistant Surgeon.*—In obedience to instructions received from the Division Commander, ordered to report in person at headquarters, Department of the Platte, for duty.—*S. O. 146, Department of Texas*, October 16, 1886.

Banister, W. B., *First Lieutenant and Assistant Surgeon.*—Assigned to duty at Fort Wingate, New Mexico.—*S. O. 97, Department of Arizona*, September 29, 1886.

Mason, Chas. T., *First Lieutenant and Assistant Surgeon.*—Relieved from temporary duty at Fort Verde, Arizona Territory, and ordered for duty at Fort Huachuca, Arizona Territory.—*S. O. 99, Department of Arizona*, October 12, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING OCTOBER 23, 1886.

Urquhart, F. M., *Passed Assistant Surgeon.*—Relieved from duty at Cape Charles Quarantine, to proceed to Washington, D. C., with Steamer "Woodworth," October 20, 1886.

Wasdin, Eugene, *Passed Assistant Surgeon.*—Promoted, and appointed Passed Assistant Surgeon from October 1, 1886, October 20, 1886.

Williams, L. L., *Assistant Surgeon.*—Granted leave of absence for three days, October 16, 1886.

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ORIGINAL LECTURES.

ON ALIMENTARY RATIONS.[1]

A Lecture on Hygienic Therapeutics.

BY PROF. DUJARDIN-BEAUMETZ,
OF PARIS, FRANCE.

GENTLEMEN: We have now passed in review in successive lectures the primordial alimentary principles, complete aliments, complex aliments, and beverages. It now remains for us to coördinate these elements, and establish the basis of dietetics.

Man, as I have told you, loses by the operations of nutrition, nitrogen, carbon, salts, and water. In the course of the twenty-four hours, these expenditures amount to 20 grammes of nitrogen, of which 14.5 grammes pass off in the urine under the form of urea and uric acid, and 5.5 grammes represent the nitrogen contained in the excrements, sweat, and mucus.

As for carbon, the daily waste is 310 grammes; of which, 250 are excreted by the lungs, 45 are eliminated by the kidneys, and 15 by the other excretions.

The salts are represented by a daily loss of 30 grammes. Lastly, we lose every day by the perspiration, by the pulmonary exhalations, by the urine and fecal matters, three litres of water.

Man must find in his food the elements needed to repair these incessant wastes. When these elements are furnished in insufficient quantity, nutrition suffers, there is commencing inanition; when the diet is too abundant, other troubles appear in the economy, of manifold nature, as we shall see. But there may be many variations in the amounts of these daily losses; age and sex, for instance, modify the quantity of carbon and nitrogen excreted, and this is due largely to the fact that the diet of infancy, mature life, and old age, cannot be precisely the same. This subject of alimentary regimen, and the data on which it is established, is one of exceeding interest, and in order satisfactorily to study it, we need to inform ourselves about what has been accomplished by zoötechnics.

Regarded from the limited standpoint of his alimentation, man is an animal, and all the laws which regulate the daily diet, the work, and the fattening of animals are in part applicable to man. I am, for my part, astonished that medical writers who have occupied themselves with this subject of alimentary hygiene have not drawn more largely from the numerous works which this important topic of the alimentation of domestic animals has produced.

Having been myself a pupil of the Zoötechnic Institute at Versailles, I am glad to be able to-day to turn to account the instructions which I have received from this school.

As has been shown by the masters of modern zoötechnics, one may at will develop in our domestic animals muscle, fat, and bone; one may even so modify the external constitution of animals as to create new varieties and even new species, which are to-day types of the domestic animals, varying according to the usage to which they are put. We ought then to have recourse to these same methods when we desire to establish a rational system of dietetics for man, and you will see me continually fortifying my position by facts drawn from zoötechnics.

The adult man, as I have said, when subjected to moderate labor, loses daily 20 grammes of nitrogen and 300 grammes of carbon; these 20 grammes of nitrogen represent 124 grammes of dried proteid matters. As these proteinaceous or azotized substances contain 64 grammes of carbon, deducting these 64 grammes from the 300 grammes necessary for nutrition, there remain 236 grammes of carbon, which must be furnished by amylaceous matters and by fats.

Moleschott, who has bestowed much study on the subject of alimentation, thinks that there is always a constant relation between the azotized matters, carbohydrates, and fatty matters, and he thinks that the relation between the proteid principles and the carbohydrates is as 1 to 3.47; and to the fatty matters, as 1 to 0.45. These different relations between the nitrogenous principles and carbohydrates on the one hand, and fats on the other, constitute what is called in zoötechnics *the nutritive relation of aliments*. These relations are represented by the following formulæ:

$$\frac{ma}{mna}, \text{ or } ma : mna.$$

$$\frac{ma}{mg}, \text{ or } ma : mg.$$

In these formulæ ma stands for the azotized matters, mna for the carbohydrates, and mg for the fats.

A diet based on these relations ought to consist daily of 124 grammes of proteid matters, 430 grammes of starch or other carbohydrates, and 54 grammes of fat for an adult man; this corresponds to the following *mixed ration* of bread and meat.

	Weight.	Azotized matters	Starch.	Fat.
	grms.	grms.	grms.	grms.
White bread	819	61.83	435	48.20
Meat	259	62.17	.....	5.80
	1078	124.00	435	54.00

If from the domain of theory we pass to that of practice—*i. e.*, to the dietary of the adult man, as carried out on a large scale—we may take as type the daily fare of the soldier.

In a recent study of the highest interest made by Kirn,[1] this question has been studied in all its aspects. We there see that to-day, according to the latest official regu-

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

[1] Kirn: On the Diet of the Soldier. (Journal des Sciences Militaires, October, 1884.)

lations which went into effect July 1, 1873, the daily ration of the French soldier in times of peace is established on the following basis:

	Quantity. grms.	Nitrogen. grms.	Carbon. grms.	Fat. grms.
Bread	1000	12.00	300.0	15.0
Meat (with bones)	300	5.41	19.8	3.6
Fresh vegetables	100	0.24	5.6	0.1
Dry legumes (beans, peas, etc.)	30	1.02	12.6	0.6
Total	1430	18.67	338.0	19.3

This ration is superior to that of the soldiers of other countries, as may be seen by the following table:

Daily Ration of Different Armies.

	Nitrogen. grms.	Carbon. grms.	Fat. grms.
French Army	18.607	338.0	19.30
Austro-Hungarian	17.00	363.9	38.80
English	17.39	382.1	39.10
Italian	17.47	363.3	17.42
German	18.02	283.9	16.42

But there is a point which should particularly interest hospital physicians, namely, hospital diet. In the full dietary regimen of hospitals the quantity of meat should never be less than 300 grammes (10 ounces) a day. Here I agree fully with Regnard, Inspector of Hospitals, who shows that a great many of these eleemosynary institutions of the departments furnish an alimentary regimen which is quite insufficient, in some instances not attaining the figure of 120 grammes of meat a day for each individual in average health. In these cases the high mortality of these hospitals must be attributed in great part to the bad aëration and meagre alimentation. We have seen in fact this mortality vary from 3 to 31 per cent., according to the statistics of Regnard,[1] and this enormous difference is sufficiently explained by the bad hygienic and alimentary conditions observed in certain of our hospitals and infirmaries.

Therefore, when you are called upon to direct or superintend these charitable institutions, you should insist not only that this quantity of 300 grammes of meat per day shall be supplied to each inmate, but also that the relation between the amylaceous and fatty aliments shall correspond as nearly as possible to the proportions which I have given above.

But we have been thus far occupied only with the daily fare of a man at rest, and such as is necessary to prevent bodily wasting. Multiple conditions present themselves which augment the phenomena of combustion, and hence necessitate an increase in the daily rations. One of the most active factors in bringing about this augmentation of the combustions is work.

In order to judge of this increased activity of the combustions of the economy, we may make use of three modes of investigation: the analysis of the gases of respiration (*i.e.*, the determination of the quantity of oxygen consumed, and of carbonic acid exhaled), the study of the temperature of the body by finding the rise or fall of the animal heat; lastly, by examination of the urine, and ascertaining the quantity of nitrogen daily excreted. The last two methods are the ones which we find the most available in clinical practice, and it is on them that I shall rely in endeavoring to show you the influence of work in augmenting the combustion of the economy.

Lavoisier was one of the first to show that muscular labor increases the quantity of oxygen consumed, and while a man at rest utilizes 36.6 litres of oxygen per hour, he requires in that time 91.25 litres in order to raise in fifteen minutes a weight 7.54 kilogrammes to 211 metres of height.

As for the quantity of urea, it also follows an ascending progression, and there is nothing more interesting in this regard than the figures furnished by Ritter, which are summed up in the following table:

Influence of Work on the Excretion of Urea.

	Quantity of urine. grms.	Total of nitrogen. grms.	Ammonia. grms.	Urea. grms.	Uric acid. grms.
Rest	1340	17.89	0.48	32 90	0 90
A walk of 4 hours	1940	20.00	0.62	39.25	0.88
A march of 4 days	2120	20.30	0.59	40.30	0.62

I call your attention especially to the last two columns; you will there see that the proportions of urea and uric acid maintain an inverse relation, and that while during rest you observe a urea production of 32.90 grammes, and a uric acid production of 0.90 gramme, after four days' marching the proportion had risen to 40.30 of urea, while the uric acid had fallen to 0.62. The physical exercise had here produced a double effect: increased elimination of nitrogen, and increased oxidation of albuminoid matters; because, as you know, the uric acid represents an incomplete combustion of proteid elements. You should always have these facts before your eyes when you have to combat the symptoms which result from the accumulation of uric acid in the economy.

It is not muscular work alone which augments the activity of combustions. Brain work has the same effect, and Byasson, in a very remarkable monograph,[1] has shown us very clearly the increase of the excretion of urea under the influence of mental labor, as you may judge by the following figures:

	Average of 24 hours. Urea.
1. A period of 3 days of rest	20.46 grammes.
2. " " muscular work	21.90 "
3. " " cerebral labor	23.88 "

Moreover, Moritz-Schiff has proved that cerebral labor raises the temperature, and Burdach, by his experiments, has demonstrated an increased consumption of oxygen under the influence of mental toil. If both muscular and mental work augment the combustions of the economy, it may be inferred that during sleep, when body and brain are at rest, there is diminished oxidation. This is what really takes place, and Boussingault, in his experiments on turtles, has shown that the quantity of carbon lost per hour which is 0.258 gramme during the waking state, is only 0.162 gramme during sleep.

Vasal, in his turn, has remarked that the mean for the urea excretion is 42.48 grammes for the twelve hours of day, and 36.24 grammes for the twelve hours of night.

There exists then a ration of labor as well as one of sustenance, and there is practically a sense in which the quantity of work done is proportional to the quantity of food ingested.

[1] Regnard: On the Mortality in the Provincial Hospitals, and on the Necessity of a Reform in the Administration of the Public Charities. (Progrès Méd., June 12, 1886, p. 489.)

[1] Byasson: The Relations which exist between Cerebral Activity and the Composition of the Urine. (Thése de Paris, 1868.)

Professor Germain Sée, who has recently delivered an interesting course of lectures on diet in health and disease, has in these lectures dwelt at length on the increase of food necessitated by labor. He would thus fix the daily fare of the workingman and the soldier:

	Azotized matters. grms.	Fats. grms.	Starchy matters. grms.
The workingman should consume	130–160	68	580
The soldier should consume	140–160	40–60	500

But it is to Hervé-Mangon that we owe the most precise and scientific indications as to the alimentary ration of sustenance and that of work. By an admirable series of investigations, which I cannot here even summarize, and for the details of which I must refer you to his writings,[1] he has arrived at the conclusion that the mean ration *per diem* of an adult living in France, *and by living kilogramme*, is 5.119 grammes of carbon, and 0.280 of nitrogen. In this total estimate it is important to distinguish the population of the large cities, like Paris, from that of the country. In Paris the consumption by day and by kilogramme is 5.673 grammes of carbon, and 0.332 gramme of nitrogen; in the country 5.808 grammes of carbon, and 0.275 gramme of nitrogen. The following table clearly shows these differences, from which it is seen that in the country more hydrocarbon is consumed and less nitrogen.

Average Ration by Day and by Kilogramme.

	Carbon. grammes.	Nitrogen. grammes.
For entire France	5.179	0.280
For Paris	5.575	0.320
For the country	5.808	0.275

Edward Smith has, in his turn, studied the minimum ration by day and by living kilogramme according to ages, and with the following results:

Minimum Ration of Sustenance according to Ages, by Day and by Living Kilogramme.

	Carbon. grammes.	Nitrogen. grammes.
Infancy	9.84	0.96
Age of ten years	6.84	0.40
Age of sixteen years	4.27	0.38
Adult age	3.60	0.20

In taking these last figures, 360 grammes of carbon, and 0.20 gramme of nitrogen, as the basis, the ration of sustenance for a man weighing 65 kilogrammes would be 234 grammes of carbon, and 13 grammes of nitrogen.

But these figures are modified in the following way when the individual works:

	Carbon. grammes.	Nitrogen. grammes.
Rest	234	13.00
Moderate labor	337.92	19.56
Hard labor	442.00	25.00

As you see by these careful statistics, there is a great difference between the ration of sustenance and that of labor, the ration of labor being nearly double that of sustenance.

In the great industrial enterprises, as, for example, the building of railroads, or the development of mines, the amount of work performed will vary according to the food supplied to the laborer, increasing or diminishing as the daily rations are abundant or insufficient; it is the same in zoötechnics, the horse doing an amount of work proportioned to the quantity of food which he consumes. In this production of labor do the azotized or non-azotized aliments play the principal part?

When, in 1842, Liebig showed that the special function of the muscles was the production of work, and that the necessary force was obtained only by the destruction of the albuminoid matters which the muscular tissue contained, all the physiologists of the period were agreed in accepting the division which he established of foods into non-azotized—which he considered as respiratory or calorifacient aliments—and azotized or plastic, which he thought were destined to repair the incessant wastes of the muscular system, and to which Liebig gave the names of "histogenetic" and "force producing."

But it was soon found that the augmentation in the production of urea had not *work* for its sole factor, and that the kind of food used had most to do with this increase; a sort of mixed theory now came into vogue, to which was given the name of *luxus-consumption theory*. In this *luxus-consumption*, it was supposed that only a feeble part of the azotized materials absorbed served for the reparation of the muscular tissue, and that the other part, the excess or *luxus* portion, being incapable of appropriation, was burned for production of animal heat, and eliminated under the form of urea and uric acid. Lehmann, Frerichs, and Schmidt have been the most conspicuous advocates of this *luxus-consumption* theory of Liebig.

But it was not long before new experiments, and especially the discovery of glycogen in the muscles, showed that during muscular effort the muscle consumes chiefly carbohydrates. Zoötechnic experiments confirm in a measure this view, in proving that in the herbivora the production of force is in relation with an alimentation which is non-azotized, and the experiments of Grandeau and Leclerc with the draught horses of the omnibus companies of Paris are in this regard completely conclusive, showing that non-azotized bodies, and especially carbohydrates, are, if not the exclusive, at least the preponderant source of the force which is manifested in muscular contraction.[1]

This conclusion, which I believe is applicable to herbivora, is it also applicable to omnivorous animals, and in particular to man? I do not think so; and while recognizing the fact that individuals living on a purely vegetable diet, like our peasants, may accomplish a considerable amount of hard work, it is nevertheless a fact that they can do a great deal more work when you augment the fat, and especially the azotized matters in their rations. This is, moreover, the conclusion to

[1] Hervé-Mangon: Traité de Genie Rural, Paris, 1875. On the Average Ration of the Inhabitant of the Country in France. (Acad. des Sciences, t. lxxix. 1874.)

[1] According to this view, plants accumulate force, and animals expend it. A plant while growing absorbs the solar rays, and thereby decomposes carbon dioxide, and stores carbon in its tissues. Thus the solar rays are transformed into static force, which accumulates in the plant. The animal consumes the plant, and converts this static force (latent in the plant) into *vis viva*, or work. So the circle of life completes itself on our earth. "The solar ray sleeps in the tissues of the plant to waken in the animal in the form of heat and work."—Hervé-Mangon.

which Lambing has arrived in his interesting treatise on the *Sources of Work and of Force in Living Beings*.[1]

Therefore, in the ration of work you ought always to augment in notable proportions the quantity of azotized materials, of starchy matters and of fat, the sum of which constitutes the daily fare of the workingman; and in the experiments made by the Western Railroad Company, the alimentary regimen which enabled the laborers to perform the maximum of work was as follows:

Meat	600 grammes.
White bread	550 "
Potatoes	1000 "
Beer	1000 "

In this study experimenters have gone even further, and have calculated the quantity of heat units and of kilogrammetres[2] produced by foods, and the data furnished by Frankland on this point are most interesting. By referring to the "mixed ration" table before given, you will find that, in accordance with Frankland's careful estimates, the number of heat units amounts to 2792, and it may be roughly stated that a man subjected to an average diet in our climate loses per day 3000 heat units, as the following table shows:

	Heat units.
For 124 grammes of dried proteid matter	541.6
" 430 " " " starchy matters	4806.0
" 49 " of fat	444.4
Total	2792.4

Or you may express it in this way, that an adult man produces by day and by kilogramme of weight, 1.5 heat units.

A man may transform into work, at the most, 540 heat units, which correspond to 229,500 kilogrammetres. Ordinarily, a man in working seven hours, does not exceed 100,000 to 150,000 kilogrammetres, and if we wished to establish on this basis, as Armand Gautier has done, the coefficient of the human machine, we might say that of 100 heat units produced, 25 serve to maintain our temperature; of the 75 which remain, 20 may be transformed into effective work, and the remaining 55 are lost in the friction of the machine. Our bodily machine then, from the point of view of the production of force, is not absolutely a pattern machine, since a great part of the force is lost.

We have just seen the importance of this estimate of heat-units, hence it is of interest to know what quantity of heat-units one kilogramme of different kinds of food may produce. Without reproducing here all the figures furnished by Frankland, I can give you the following calculation:

	Heat units
One kilogramme of dried albumen, in undergoing transformation into urea, gives	4.368
One kilogramme of starch, in undergoing oxidation, gives	4.200
" " " fat " " " "	9.069

Moreover, experimental physiologists have gone still further in this study of nutrition, and have inquired into the foods proper for each organ; and while muscle consumes chiefly albumen, the nervous tissue appropriates albuminoid matters, and especially *lecithin*, a phosphorized fat, which, in conjunction with neurine, forms protogon; lastly, bones utilize calcareous salts, and, in particular, phosphates.

Such are the facts which I designed to present relative to daily rations; to complete them, you have but to cast your eyes over the following table, which shows the quantity of nitrogen and carbon furnished by the greater part of aliments which serve for the nutrition of man.

Name of food.	Nitrogen.	C — H. Combustibles calculated in carbon.
Beef steak	3.00 per ct.	11.00 per ct.
Roast beef	3.53 "	17.76 "
Veal	3.09 "	15.68 "
Fois gras (of goose)	2.12 "	65.58 "
Mutton chop	2.66 "	12.13 "
Salt herrings	3.11 "	23.00 "
Fresh "	1.83 "	21.00 "
Mackerel	3.74 "	19.26 "
Salmon	2.09 "	16.00 "
Eel	2.00 "	30.00 "
Mussel	1.80 "	9.00 "
Oyster	2.13 "	7 18 "
Lobster	2 93 "	10.96 "
Eggs	1.90 "	13.50 "
Cow's milk	0.66 "	8 00 "
Goat's "	0.69 "	8.60 "
Gruyere cheese	5.00 "	38.00 "
Roquefort cheese	4.21 "	44.44 "
Brie cheese	2.93 "	35 00 "
Chocolate	1.52 "	58.00 "
Wheat	3.00 "	41.00 "
Wheaten flour (superfine)	1.64 "	38 56 "
Rye flour	1.75 "	41.00 "
Winter barley	1.90 "	40.00 "
Indian corn	1.70 "	44.00 "
Buckwheat	2.20 "	42 50 "
Rice	1.80 "	41.00 "
Oatmeal gruel	1 95 "	44.00 "
White bread of Paris (44 per cent. of water)	1.08 "	29 50 "
Army bread of France	1.20 "	30.00 "
Fresh chestnuts	0.64 "	35 00 "
Dried chestnuts	1.04 "	48 00 "
Potatoes	0.33 "	11.00 "
Beans	4.50 "	42.00 "
Dried peas	3.66 "	44.00 "
Carrots	0.31 "	5.50 "
Mushrooms	0.60 "	4.52 "
Fresh figs	0.41 "	15.50 "
Dried figs	0.92 "	34 00 "
Prunes	0.75 "	28.00 "
Infusion of 100 grms. coffee	1.10 "	9 00 "
" " " tea	1.00 "	10.50 "
Fat pork	1.28 "	71.14 "
Fresh butter	0.64 "	83.00 "
Olive oil	traces.	98.00 "
Strong beer	0.05 "	4.50 "
Wine	0.15 "	4.00 "

In my *Diseases of the Stomach and Intestines* I have given a similar table, but this time I have simplified it, by referring all the figures to the quantity of nitrogen and carbon utilized by the economy. You can, by the help of this table, establish on scientific data the alimentary regimen of different patients. It will suffice to multiply the figure of nitrogen by 6.5 to obtain the weight of dry proteid matters contained in 100 grammes

[1] Lambing: Des origines du travail et de la force chez les êtres humains. (Thèse d'Agrégation, 1886.)

[2] Under the Continental system, the mechanical equivalent of heat is expressed in *kilogrammetres*, a kilogrammetre constituting one kilogramme (2.2046 pounds avoirdupois) raised to the height of a metre (3.2808 feet). Kilogrammetres are convertible into foot pounds by multiplying by 7.232; one kilogramme raised one metre high, equalling one pound raised 7.232 feet high.

of fresh aliments. You have only to know the weight of the individual, and to remember that in the adult the average alimentary ration should oscillate—by day and by living kilogramme—between the following figures: 6 to 9 grammes of carbon, and 0.360 to 0.250 gramme of nitrogen.

When once these data are mastered you will be prepared to go on with me to the consideration of insufficient and superabundant dietary regimens, and their application to therapeutics. In the next lecture we will take up the subject of insufficient regimen, and the treatment of obesity.

ORIGINAL ARTICLES.

A NOTE ON THE PRODUCTION OF CATHARSIS BY MEANS OF HYPODERMATIC MEDICATION.[1]

By WM. L. DUDLEY, M.D.,
PROF. OF CHEMISTRY, VANDERBILT UNIVERSITY, NASHVILLE, TENN.,
AND
CHAS. H. CASTLE, M.D.,
DEMONSTRATOR OF CHEMISTRY, MIAMI MEDICAL COLLEGE, CINCINNATI, OHIO.

It is often necessary to produce catharsis with the least possible loss of time. It is also frequently the case that cathartics cannot be administered *per orem*, and that injections per rectum will not accomplish our purpose. In such emergencies, it has been our habit to rely upon croton oil, dropped upon and absorbed by the tongue; but experience will bear us out when we say that croton oil is not always reliable. How, then, are we to attain our object certainly, expeditiously, and safely? We must seek our reply in an appeal to the hypodermatic syringe, and that class of drugs which produce catharsis by their absorption into the circulation, and subsequent action through the nervous system. The list of the latter is of goodly length. We have already employed not a few of them upon the lower animals, and with the most gratifying results. We are not prepared to assert positively that we have found an agent which, when used hypodermetically, will invariably produce catharsis expeditiously and safely, but we believe that further observation—leading to a better knowledge of solubility and dosage—will establish this claim for two or more of the substances with which we have lately been working.

We present herewith the results of some observations upon cathartic acid, podophyllotoxin, and elaterin.

Cathartic Acid was first isolated from senna by Dragendorff and Kubly, in 1866, and described by them to be a glucoside, of weak, acid character, having the formula $C_{150}H_{192}N_4O_{82}S$. Cathartin was isolated and described by Lassaigne and Feneulle, who considered it the active, purgative principle of senna; but it was afterward found to be a mixture having little, if any, purgative properties, and it is now generally admitted that cathartic acid is the active principle of the plant. Cathartic acid has a brown color while moist, and is nearly black when dry. It is an amorphous substance, nearly insoluble in water, and insoluble in ether and alcohol, but readily combines with the alkalies and earths, forming salts soluble in water, which are decomposed by acids with precipitation of the cathartic acid. It may be purified by dialysis, as it has strong colloidal properties.

The cathartic acid used in these experiments was that found in the market, prepared by H. Trommsdorff. It was of a dark brown color, having an odor and taste resembling licorice. It was completely soluble in water, forming a wine-red colored solution. From its chemical and physical properties, we were convinced that the preparation was by no means pure, and the results here given are only of value so far as the commercial acid is concerned. We are now preparing the pure cathartic acid, and will soon be able to present data obtained by its use. The difficulty in obtaining, in a pure state, drugs which are little used, is recognized by every experimenter.

We have used cathartic acid four times upon young kittens. In the first two experiments we injected one-third of a grain and one-half of a grain, respectively. These kittens were in a poor physical condition when they came to us. The injections made into the subcutaneous tissue of the belly caused no discoverable local irritation. The kittens died in about two days, no catharsis having been produced; but, upon post-mortem examination, the small intestines were found empty and slightly injected, and the colon enormously distended with impacted feces. In the third experiment we employed one grain of the acid without local irritation or the production of catharsis. In the fourth observation two grains of the acid were used, and in ten hours free catharsis came on. The stools were at first hard; later, soft and clay colored. This effect continued for several days.

In two instances we used the cathartate of ammonium—giving one grain of the salt. One of the kittens experimented upon died in about thirteen hours, and, as in the case of the other two, the stomach and intestines were found empty and somewhat injected, and the large intestine distended with impacted feces. Free catharsis was induced in the other kitten in about four hours.

We propose now, from a chemically pure cathartic acid, to make a cathartate of ammonium of purity and known composition, and on the basis of our former observations, soon to determine the cathartic dose for man.

Podophyllotoxin.—D. V. Podowissotsky (*Pharm. Zeitschrift für Russland*, 1882, vol. xx. p. 777) found, after careful examination, the root and resin of podophyllum to contain podophyllotoxin as the active purgative principle. This body he described as being composed of a resin acid, picropodophyllic acid, and a neutral crystalline principle which he called picropodophyllin. Podophyllotoxin, when pure, is described as a bitter, white, resinous powder, soluble in weak alcohol and hot water, while that of commerce is a light yellow powder. It is precipitated from its alcoholic solution by water in large quantity. The slight color of the commercial article

[1] Read before the Cincinnati Medical Society.

is probably due to the coloring matter which has been imperfectly separated.

Brunton states that the resin of podophyllum "acts on the bowels when injected subcutaneously, as well as when introduced into the intestinal canal." In 1880, Dr. D. O. Brau reported that he had used podophyllotoxin as a purgative for children and found it completely to represent podophyllin. To a child 13 years old he gave from $\frac{6}{100}$ths to $\frac{9}{100}$ths of a grain.

We have used podophyllotoxin upon kittens three times, producing free catharsis in each case within an hour. In two of the experiments catharsis was carried to the extent of bloody, mucous passages, the bowels remaining loose for several days. In these cases there was no depression of any kind manifest until after many watery stools had been voided, when the cats betrayed the weakening effect of this drain of albuminous fluid. In one case the catharsis was promptly checked by the hypodermatic administration of a sixteenth of a grain of morphia. We have also used podophyllotoxin upon man four times —two of the cases being in the Cincinnati Hospital.

I will quote the notes of the resident physicians making the observations.

Dr. Nicehelser reports:

April 26. A. P., aet. fifty-eight. Chronic rheumatism. Bowels were usually irregular. Has now had a constipation of five days' standing. In the morning complained of pain in abdomen. Ordered tinct. opium gtt. x. Pain relieved. At 3.45 P. M., was given gr. $\frac{1}{10}$th podophyllotoxin in a fifty per cent. alcoholic solution hypodermatically. Hourly observations were made of pulse and temperature. Neither of these was in any way affected. Nine hours after the injection, at 12.45 A.M., he had one hard moulded stool, and at 5 A. M. another stool, soft in character. Thereafter his bowels continued regular until May 4, when he was discharged from the house. There was some local irritation at the point of injection, but it was inconsiderable in amount.

Mr. Mussey reports:

April 30. O. M., colored, æt. twenty-one. Syphilis of nine months' duration. Now has several abscesses on neck, and an antero-posterior curvature of the spine. Patient's bowels have been constipated and it has always been necessary to give a cathartic to bring about a movement, the one usually employed being epsom salts ℥ss. States to-day that he has had no stool for two weeks.

8.40 A. M. Gave ♏xx podophyllotoxin in solution fifty per cent. alcohol, equalling gr. $\frac{1}{10}$th of the drug, hypodermatically. Pulse 84, temperature normal.

9.40. No stool, pulse 84, strong and full. Temperature not taken.

1.40 P. M. No stool, nor has patient had any inclination in that direction. Pulse 72, good and full. Some swelling, redness, and tenderness at point of injection.

At some time during the early morning of May 1, patient had a large stool and during the day had another. No pain accompanied either movement. Questioning brought to light the fact that the night before the podophyllotoxin was given, the nurse had, without orders, given a dose of salts, which had produced a small stool that very morning. For some days after administration of drug, bowels moved without any trouble. Patient had at the time the podophyllotoxin was given, complete paralysis of motion and sensation in lower limbs.

The doses used in these cases were those recommended by Dr. Brau for children of thirteen years of age.

In view of the smallness of the dose, therefore, the results may be held to be satisfactory, especially when we consider that we were working with a preparation which was probably not at all equal in strength to chemically pure podophyllotoxin.

It will be observed that the absence of any effect upon the circulation and temperature is a matter of importance, especially in a class of drugs the influence of which, in the main, is depressing.

A few days ago, two healthy adults took respectively $\frac{1}{10}$th gr. and $\frac{1}{7}$th gr., hypodermatically, from this same solution that had been used in the Hospital, and was now some two months old. There was no cathartic effect produced, the glucoside having probably undergone decomposition. There was not a little local irritation at the seats of injection.

Elaterin—$C_{20}H_{28}O_5$—is the principal constituent of elaterium, and when pure is obtained in colorless, shining, hexagonal scales or prisms, with an acrid and extremely bitter taste. It is soluble in 125 parts of alcohol at 15° C., in 2 parts of boiling alcohol, in 290 parts of ether, in amylic alcohol, carbon disulphide, and chloroform. It is insoluble in petroleum benzine. According to various authorities, it is present in elaterium in from 15 to 50 per cent. Brunton states that elaterin used in subcutaneous injections "acts on the nervous system, causing salivation, insensibility, tetanus, and dyspnœa, and also that it only acts as a purgative when taken internally, and appears to require bile in order to act." It is a powerful and valuable remedy, and is especially indicated in dropsies and in those cerebral affections in which a reduction of the general blood pressure is necessary.

The results of our experiments, if verified, will be much more satisfactory to the therapist. In two experiments we have used $\frac{1}{10}$th gr. and $\frac{1}{20}$th gr. of elaterin instantaneously. In neither instance was there any untoward effect—the kittens remaining playful and evidencing no discomfort during the time of operation of the drug, and in both cases large watery stools were produced within an hour. We have not, as yet, used it upon man.

Elaterium.—The striking difference in the results attained by us and those arrived at by other observers in the use of elaterin, urged us to extend our observations and make comparative experiments with elaterium.

Elaterium is a substance deposited from the juice of the squirting cucumber. It contains, besides elaterin, pectin, prophetin, ecbatin, or elateric acid, hydroelaterin, etc. We could not but think that a mistake had been made in setting down the physiological action of elaterium and its active purgative principle as identical, and we were inclined to believe that the distressing fatal symptoms observed after the hypodermatic use of elaterium were due to some other one of the ingredients of the juice than elaterin. It is certain that in no instance in our hands did the hypodermatic employment of elaterin lead to the results to be found set down in our standard text-books; while the employment of the elaterium did give rise to the apathy, somnolence,

coma, dyspnœa, convulsions, and death, as described by former observers. Our confirmatory observations were as follows:

An extract of elaterium was prepared by treating four grains of the pulverized elaterium with 120 minims of commercial alcohol, and boiling for a few minutes. After cooling, the clear extract was decanted from the insoluble residue.

In one case five minims of the solution (representing $\frac{1}{6}$th of a grain of elaterium) were diluted with an equal quantity of distilled water, and injected into a cat. In a second case ten minims of the solution (representing one-third grain of elaterium) were diluted with an equal quantity of water, and also injected into a cat.

The details of the cases are as follows:

Experiment No. 1.—Elaterium, gr. $\frac{1}{6}$th, 1.40 P. M. 2.21 hard stools. 2.25 disturbed respiration, salivation, muscular weakness, attempted vomiting, symptoms rapidly increasing in severity. Coma, convulsions, profuse salivation, apnœa, and death at 2.38. Autopsy: lungs intensely congested; heart ceased action in diastole, and was full of blood; stomach and upper part of small intestine empty, injected, and succulent; large intestine impacted.

Experiment No. 2.—Elaterium, gr. $\frac{1}{3}$d, 1.35 P. M. 2.45 some uneasiness. 3.45 somnolent. 4.30 still somnolent, apathetic, and has some salivation. No stool. No alarming symptoms. This kitten was given to the physiological laboratory the next day, that its organs might be used as injected specimens. When killed and opened, its alimentary canal was found to contain vast numbers of large lumbricoid worms. The small intestine was so distended that the injection was a failure.

We again used elaterin with the following results:

Experiment No. 3.—Elaterin, gr. $\frac{1}{25}$th, 11.12 A. M. 2.45 has been sleeping most of the time since the injection was given. 3.35 same as above. 5 no stool—no bad symptoms.

Experiment No. 4.—Elaterin, gr. $\frac{1}{12}$th, 11.16 A. M. 1.40 large watery stool. 1.47 copious watery, yellowish stool. 4.30 cat quiet—no bad symptoms.

Note.—The approaching departure of one of us for new fields of labor, interrupts the further prosecution of our joint observations. We, therefore, offer the results of our studies to our professional brethren without a promise of further extension, as a suggestion of what may be accomplished in the future, and as a guide, however insufficient, to the production of catharsis by means of hypodermatic medication.

Cincinnati, August, 1886.

ON THE MICROÖRGANISMS OF LACTIC ACID FERMENTATION.[1]

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The presence of microörganisms in liquids undergoing fermentation has hitherto been interpreted and explained in various ways. While some looked at these low forms of life as the mere associates of these processes, attributing the real cause of the resulting decomposition to chemical ferments, others, though believing in the causation of fermentation by microörganisms, looked at these processes as physiological ones or else attributed them to a certain power of adaptability possessed by certain microbes to different conditions of life.

Lister was, perhaps, the first clearly to point out the fact that the peculiar and characteristic fermentative process by which milk becomes sour, is initiated or directly caused by a certain species of microbe. While, however, Lister had proved this fact, it did not necessarily follow from his experiments alone, that the same process might not also be called into existence by a chemical ferment produced by the lacteal glands and which was already contained in the milk when it left these glands.

The matter, therefore, even after Lister's famous experiments, remained as undecided as ever, and the contention which had grown up between chemists and biologists for ages past, had not been diminished in any way.

In the mean time, our methods of bacteriological research having been greatly improved by the patient and admirable researches of Professor Robert Koch, it had become necessary to reinvestigate this whole question. This task has, indeed, been most ably performed by Dr. Hueppe, whose researches will be found embodied in a recent contribution to our knowledge of lactic acid fermentation and fermentation in general, published in the *Mittheilungen d. kaiserlichen Gesundheitsamtes*, Berlin, 1884.

In this paper Hueppe has, we think, successfully demonstrated the fact that lactic acid fermentation, or the process of the souring of milk, by which the sugar contained in milk is converted into lactic and carbonic acids, is directly dependent on or caused by a certain definite variety of microorganism, the morphological and physiological characters of which render it sufficiently distinct from any other known microbe.

Hueppe has demonstrated his point in the following manner: First, by showing that this particular organism is constantly associated with lactic acid fermentation; second, by separating it from other microörganisms; third, by cultivating it outside the original media in which it occurs, so as to separate chemical by-products; fourth, by the inoculation of pure cultures into the proper media, producing the characteristic decomposition; fifth, by ascertaining the biological conditions under which this process of fermentation is brought about in the best manner.

Although Hueppe himself is exceedingly guarded in his conclusions, the results obtained by him from the very accurate series of experiments made according to the most modern and advanced methods, will, no doubt, be fully realized by even those who are but slightly familiar with the history of fermentation and the long struggle which has existed for ages, and still exists between chemists and biologists with regard to the nature and causes of fermentation. This alone would, no doubt, form sufficient pretext for a critical examination and repetition of at least a portion of Hueppe's experiments. But aside from

[1] Read at the meeting of the United States Naval Medical Society, held Sept. 7 at the Museum of Hygiene, Washington, D. C.

this, and in spite of the fact that the importation of Hueppe's lactic acid germ is most likely to be an almost daily occurrence on this side of the Atlantic, the identity between it and the germs which cause the same decomposition in American milk, must be proven by the same methods and experiments, in order to make this mere supposition a certainty.

With this object in view, I gladly took advantage of an opportunity kindly offered to me this summer by Drs. E. D. Salmon and Theobald Smith, of the Bureau of Animal Industry, of working out this problem in their well-equipped laboratory.

In repeating Hueppe's experiments, so far as this was done by me, it was, of course, thought best to follow out the same course of experimenting and use the same methods as were used by him, and the first question, therefore, which naturally arose was, What microörganisms, if any, do we find in sour milk as it occurs in our market?

In order to determine this point, four sterilized test tubes were each charged with ten cubic centimetres of ordinary milk and set aside at the temperature of the room which, during our summer, is about 80° F. On the following morning, an examination showed that the contents of these tubes had undergone a change which seemed the same in all. A solid precipitate was found at the bottom of the tubes, showing only here and there a few superficial cracks or fissures and a slightly turbid, watery supernatant liquid; the precipitate was of the consistency of soft butter, and the liquid reacted very decidedly acid to litmus paper.

From each one of the test tubes several cover-glass preparations were now made and examined under the microscope, partly stained with methyl-violet, partly unstained. After a careful examination of these preparations, three different kinds of microorganisms were found to be present, namely: 1. A rather long and narrow, much curved bacillus. 2. A micrococcus. 3. A form of bacterium. The bacillus was found to be present in but one of the test tubes, the micrococcus in another, but the bacterium could be demonstrated as present in all four of the tubes, and in two of them it existed almost in the form of a pure culture.

It now became, of course, necessary to produce pure cultures of the various organisms which had been found, and to this end Koch's method of plate cultures was resorted to as follows: Three sterilized glass plates were thinly coated on one side with a layer of sterilized beef infusion-peptone-gelatine, previously liquefied at a gentle heat; the plates were supported by a glass vessel containing ice, and the whole protected by a bell-jar from dust and other atmospheric impurities, and set aside to cool until the gelatine had almost solidified. That time having arrived, a small trace of the contents of the tubes was taken out by means of a previously sterilized platinum wire, and each plate separately inoculated by drawing several lines lightly across it with the end of the wire which had been lightly dipped into the contents of the tubes.

All the plates were transferred under the bell-jar to a chamber in which the temperature remained constant at 70° F., which is sufficiently low to prevent the gelatine from melting, and still high enough to allow of the development of most bacterial organisms.

At the expiration of the first twenty-four hours after inoculation, all the lines which had been drawn over the surface of the plates seemed crowded with colonies of bacteria, the first lines on each plate having received more of the inoculated material than the rest, were continuous lines, the colonies having fused into one another. The margins of the lines were jagged, looking not unlike the plate of a fine saw with blunt teeth. The lower lines, however, showed distinct and isolated colonies having, apparently, originated from a single germ. Both lines and isolated colonies were of a porcelain-like whiteness, the latter looking like little drops of white paint sprinkled over the surface. Examined under a very low power of the microscope, most of the isolated colonies were seen to form round little knobs, projecting slightly from the surrounding surface and possessing very finely granular contents. There were also a few other colonies differing slightly from those described, but, owing to the fact that development in them had not as yet proceeded far enough, their characters were not very distinctly shown. On two of the plates quite a number of fungi had also developed.

From several of the isolated bacterial colonies, resembling in appearance the great majority of the colonies on the plates, two culture tubes containing sterilized beef-infusion-peptone were inoculated by means of a previously heated platinum wire. The colonies from which the material for inoculation was taken were identical in appearance with those described by Hueppe as "porcellanartige Knöpfe," being round or nearly so, with a well-defined contour, elevated and much thicker in the centre, uniformly slanting and growing thinner toward their margins.

Two other culture tubes containing beef-infusion-peptone were inoculated in the same manner from colonies showing slight differences from the majority of them, and all were set aside in a warm chamber, the temperature of which varied between 95° and 98° F.

On the following morning every one of the inoculated tubes showed slight but unmistakable turbidity, a very thin bluish-white membrane was seen floating on the surface and adhering to the sides of the tubes near the surface of the culture liquid.

Forty-eight hours from the time of inoculation a rather thick membrane was found on the surface of all four of the inoculated tubes, and the turbidity had considerably increased in extent. In two of them an abundant pulverulent deposit of a dirty yellow color was found to occupy the entire concavity of the bottom of the culture tube. These were the ones which had been inoculated from those colonies which showed slight differences from the majority. In the remaining two culture tubes this deposit was entirely absent, the membrane on the surface of the liquid, and the turbidity marking the only change which had taken place in them.

From the latter, several cover-glass preparations

were now made and examined under a one-eighteenth homogeneous immersion lens. The examination showed them to consist of a pure culture of the bacterium already mentioned, and to be described more in detail presently. Cover-glass preparations made from the other tubes proved their contents to be mixtures of all three of the original microörganisms observed in the sour milk.

Examined in the glass cell, the bacillus exhibited active movements, the micrococcus and the bacterium were both motionless.

From each of the two culture tubes containing the bacterium in the pure state, so far as that can be ascertained by cover-glass preparations, two plate-cultures were now prepared in the following manner: About ten cubic centimetres of sterilized beef-infusion-peptone-gelatine were liquefied in a test tube by gentle heat over a Bunsen burner, a very small quantity from the pure culture was transferred into the liquefied gelatine by means of a heated platinum wire, and the contents, after slight agitation, poured on a sterilized glass plate and set aside to cool, well protected by a bell-jar. The temperature of the chamber remained constant at 70° F.

On the next morning an examination showed that the whole surface of the gelatine-covered plate was thickly studded with a rich growth of colonies which, to the naked eye, were small, round, of a dirty white color and a peculiar lustre; they were slightly elevated from the surrounding surface of the gelatine, pretty uniform in size, and very evenly distributed and not liquefying gelatine. No differences whatever could be made out as existing between the colonies either by the naked eye or by means of the microscope.

Cover-glass preparations, made from a number of these colonies, which were afterward examined by means of the one-eighteenth homogeneous immersion lens of Zeiss, partly stained in methyl-violet, partly unstained, showed that on all pure cultures of the bacterium were present which was identical with that described by Hueppe as bacillus lactis.[1]

Four culture tubes, containing beef-infusion-peptone, were next inoculated each with a small trace of material coming from a different colony on the plates, and placed in a chamber where the temperature remained at 98° F. At the end of the first twenty-four hours from the time of inoculation, an examination showed slight turbidity in the contents of the tubes; in all, a very thin and delicate bluish-white membrane could be seen floating on the surface of the liquid and adhering to the sides of the tubes. After forty-eight hours from the time of inoculation, the membrane had grown slightly thicker and fell to the bottom on slight manipulation. Cover-glass preparations made from each of these cultures showed bacterium lactis in a state of purity.

In the same manner as described for bacterium lactis, pure cultures were obtained from the coccus and also the bacillus mentioned above. For, although it was to be supposed that the bacterium was the organism in question and that both bacillus and coccus were mere accidental impurities, it had still to be proven by actual experiment that this was no mere supposition, but the fact, and for this reason pure cultures were made from them also.

Four culture tubes, containing about ten cubic centimetres each of milk, sterilized by discontinuous heating, were now inoculated from one of the pure cultures of bacterium lactis and set aside in the culture-oven. An examination of these tubes, twenty-four hours from the time of inoculation, showed very plainly that the change characteristic of the souring of milk had already taken place. A precipitate or deposit had formed which was both voluminous and solid, showing a few superficial cracks and fissures which deepened somewhat during the succeeding days. The supernatant liquid was clear and watery, possessing a very decidedly acid reaction. Further examination showed the characteristic microörganism in the pure state.

Several culture tubes, containing sterilized milk, had also been inoculated with pure cultures of the bacillus and the coccus respectively, but no such change was found to have taken place in them. In fact, with the exception of a slight yellowish discoloration, no change whatever was noticed in them, the milk having remained fluid even up to the end of the fourth day when observation on them was discontinued.

The milk used in these experiments had been sterilized by discontinuous boiling. According to Hueppe, milk may be sterilized by a temperature of 75° C., but 100° C. is perfectly admissible, though higher ones are not.

So far, then, a peculiar bacterium, identical in all respects with that described by Hueppe as bacillus lactis, had been found constantly associated with the process of lactic acid fermentation; the bacterium had been isolated and pure cultures produced from it, the inoculation of which into sterilized milk produced the characteristic decomposition, while pure cultures from the other microörganisms inoculated in the same way did not produce this change.

It still remained to be proven that the peculiar and very characteristic change brought about by the inoculation into sterilized milk of a pure culture of this germ, was due to the decomposition of the sugar contained in milk into lactic and carbonic acids.

To this end a large quantity of a solution of certain salts in distilled water was made, recommended by Hueppe as best supporting the growth of this bacterium. The solution contained dipotassium phosphate 0.3 per cent., magnesium sulphate 0.1 per cent., and chloride of calcium 0.025 per cent. A fine flocculent precipitate was formed when the salts were mixed together; this precipitate was not filtered off, but was allowed to remain in the solution. Using this as a menstruum, three culture flasks were charged with 100 centimetres each of the solution. To

[1] The term *bacillus*, which has been applied to this form of bacterium, by Hueppe and also by Dr. James Eisenberg (*Bacteriologische Diagnostik*), is by no means incorrect. A bacterium which, according to the medium in which it happens to be cultivated, is found to vary in length all the way from 1-2.5 μ, may, perhaps, well deserve the name of *bacillus*; when, however, it is cultivated in milk and examined before the process of fermentation has ceased—in other words, when this process is at its height—its length, according to Hueppe's own measurements, remains within that of a bacterium; and we have, for this reason, preferred the latter term to that of bacillus.

one of the flasks one gramme of peptone was added, to another, three grammes of milk sugar, and to the third, three grammes of glucose were added. Three exhaustion bulbs were likewise charged with about ten cubic centimetres each of the same fluid. All the flasks and bulbs being well protected with cotton plugs, were now sterilized in the steam sterilizer, where they remained for two consecutive hours; the thermometer showing that the maximum temperature during that time had reached 108° C.

On the following day the three flasks were inoculated with a pure culture of bacterium lactis and placed in the culture oven. The bulbs were likewise inoculated, and immediately afterward the air was exhausted by means of an air-pump which was kept working steadily for fifteen minutes, the bulbs being immersed in a water bath, the temperature of which was kept at 103° F. At the end of that time, the necks of the bulbs, having been previously drawn out to a fine capillary tube, were sealed up by means of an alcohol flame, and thus hermetically sealed they were placed in the culture oven and kept at a temperature varying between 95° and 98° F.

Those of the flasks and bulbs which contained the sugar solutions had changed color slightly during sterilization. The solutions, from being colorless or almost so, had assumed an amber tint, due, of course, to the fact that some of the sugar had been caramelized by the heat applied to it during the process of sterilization. The precipitate which formed on mixing the various salt solutions together, had become somewhat granular and settled to the bottom, leaving a perfectly clear supernatant fluid.

On the following morning, or about twenty hours from the time of inoculation, the contents of all the culture flasks had become turbid, the exhaustion bulbs, on the contrary, remaining perfectly clear. Forty-eight hours after inoculation, those of the culture flasks containing the sugars in solution, exhibited signs of active fermentation. An abundance of large air bubbles had collected on the surface and small ones could be seen constantly rising in the fluid. Nothing like this was noticed about the bulbs. This process of fermentation seemed to be ended on the fourth day, when all the flasks became turbid, and membranes had formed on the surface of the fluids, especially on the surface of the peptone solution.

On the eighth day after inoculation the contents of the flasks were examined. Pure cultures of bacterium lactis were found to be present in every one, as was easily ascertained by cover-glass preparations. The reaction of the fluids containing the sugars in solution was very decidedly acid. The quantity of the acid as determined volumetrically, was 0.125 or exactly one-eighth of a per cent., and was the same in both the flasks.

The bulbs from which the air had been exhausted, by means of an air-pump, showed no traces of either turbidity or fermentation after an exposure in the culture oven to a temperature of 98° F. for the period of two weeks. At this time, the sealed points of the necks of the bulbs were broken off under a sterilized cotton plug, and both turbidity and fermentation appeared promptly on the following day, bacterium lactis developing quickly and abundantly in the pure state as was afterward ascertained by cover-glass preparations.

All these experiments were repeated several times with results practically identical with those which have been here described. In some of the experiments the sugar solutions had been exposed to too high a temperature (112° C.) during sterilization, and, consequently, most all the sugar had been caramelized; the quantity of lactic acid produced, therefore, was not equally large in all cases, but enough had remained to give an acid reaction to litmus paper.

In salt solutions, made with the acid phosphate of potassium instead of with the dipotassium phosphate, bacterium lactis remained undeveloped and no sign of either turbidity or fermentation was noticed, even one month after inoculation.

While thus engaged in the study of the physiological properties of bacterium lactis, Dr. Theobald Smith was investigating the character of a bacterium obtained from the spleen of a pig supposed to have died of swine-plague. Examining one day some of his cover-glass preparations, I was impressed with the remarkable morphological similarity existing between the two germs. Discussing the subject, I was informed by Dr. Smith that this germ turned sterilized milk sour, and this led me to investigate further the germ in its relation to lactic acid fermentation.

A fresh lot of salt solutions was accordingly made and four culture flasks were charged with 100 centimetres each. Two of them received three grammes of milk sugar, and the remaining two three grammes each of cane sugar. These solutions were sterilized by discontinuous boiling. The boiling was kept up for five minutes, and done once a day for five days; the solutions remained colorless and came out perfectly clear and transparent. After sterilization one of the sugar- and one of the lactose-containing flasks received a small portion of a pure culture of the supposed swine-plague germ,[1] and the other two were inoculated with bacterium lactis.

Forty-eight hours after inoculation fermentation was found to be active in the flasks inoculated with bacterium lactis, as was evidenced by the number of air-bubbles rising to the surface. No change whatever, with the exception of some turbidity, was noticed in the flasks which had been inoculated with the supposed swine-plague germ.

At the expiration of two weeks of exposure to a temperature in the culture oven of 98° F., the contents of the flasks were examined. Those inoculated with bacterium lactis were very decidedly acid to litmus paper, those containing the bacterium of swine-plague reacted slightly, but distinctly alkaline, thus, leaving bacterium lactis alone in the field as possessing the power of converting sugar into lactic and carbonic acids.

The quantity of lactic acid, as determined by volumetric analysis, for the sugar flasks, was 0.178 or nearly one-fifth of one per cent.

[1] Presumed to be a modification of the germ which gives rise to swine-plagues in the East; was brought from the State of Illinois.

Bacterium lactis may be described as a short, thick, plump, little rod, distinctly ovoidal in shape, about half as broad as long, and varying in length from 1 to 2 μ, its breadth remaining tolerably uniform. The best specimens may be found in milk cultures, the smallest in beef-infusion-peptone-gelatine cultures. As the bacterium lengthens, a slight constriction about its middle portion becomes noticeable which soon broadens and deepens, giving rise just before complete division takes place, to the figure-8 form. This form becomes more especially noticeable in preparations stained with methyl-violet, which leaves a very minute central portion of the protoplasm unstained. The germ does not liquefy gelatine, and when examined on the hollow slide, it is found to be motionless. With regard to spore-formation, our experiments have not been attended by very positive results, although everything else seems to indicate that they do form spores. The settlement of this question will form one of the subjects of future investigations.

The results of the foregoing experiments have led me to agree fully with those obtained by Hueppe, namely: lactic acid fermentation, or the process of the souring of milk during which the sugar contained in the latter is converted into lactic and carbonic acids, is directly dependent on or caused by the life and growth of a certain definite variety of micro-organism, the physiological characters of which are sufficiently distinct to differentiate it from any other known organism, and which, therefore, may be properly designated as bacterium lactis.

A MODIFICATION OF WEIGERT'S METHOD OF STAINING THE TISSUES OF THE CENTRAL NERVOUS SYSTEM.

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The specimens, hardened in Müller's or Erlicki's fluid, are transferred directly (without coming in contact with water) to alcohol 70 per cent. The pieces to be embedded are now gradually dehydrated, advancing from 70 per cent. to 95 per cent. alcohol, and finally to absolute. After soaking in absolute alcohol for several days, they are transferred to a mixture of equal parts of ether and absolute alcohol, and allowed to soak for one or two days; they are then transferred to a solution of celloidin, and are embedded in celloidin on cork.

The pieces, fastened to a cork with celloidin, are immersed in a solution of neutral acetate of copper (a saturated filtered solution of this salt, diluted with an equal volume of water), and allowed to remain in an incubator at 30° or 40° C. for one or two days.

The specimens become pea-green after the copper treatment, the celloidin mantle more of a blue-green; they may now be preserved in 80 per cent. alcohol indefinitely.

After having made the sections, which must still be kept clear of water, they are immersed in the hæmatoxylin solution, the formula for which is as follows: hæmatoxylon (Merck's, in crystals), one part; absolute alcohol, ten parts; water, ninety parts; boil twenty minutes, cool and filter, and to each one hundred parts add one part of a cold saturated solution of lithium carbonate.

The time required for staining varies with different specimens; in general, the rule prevails that the longer one colors, the surer the result; for cord sections, two or three hours are usually sufficient; in brain sections, twenty-four hours are required in order to color the very fine fibres of the cortex.

After staining, the sections, now black in color, are differentiated by immersion in the following solution: borax, two parts; ferricyanide of potassium (red prussiate), two and one-half parts; water, one hundred parts. It will be found that the time required for perfect differentiation varies in different specimens: in cord sections, it usually takes from one-half hour to several hours before the desired contrast between white and gray matter is obtained, and in brain sections it is longer. No fear of spoiling the sections need be felt. I have frequently allowed sections to remain in this solution for twelve hours without ill result.

From this solution the sections are transferred to water and well washed; then to 80 per cent. or 90 per cent. alcohol; they are then spread on slides and dehydrated thoroughly with absolute alcohol, and then clarified. I prefer xylol or creasote for clarifying, and xylol or benzole balsam for mounting.

If the steps in this method are carefully followed, success is certain; and it is without exception the method for tracing nerve fibres or demonstrating nerve lesions.

HOSPITAL NOTES.

DISPENSARY FOR NERVOUS DISEASES, BALTIMORE.

Service of John Van Bibber, M.D.

SOME ANOMALOUS AND COMPLICATED EXAMPLES OF CHOREA.

While there is no definite pathology for chorea, and it is possible that different types of the disease may be due to entirely distinct causes, it is very interesting to study the following cases, which I select from the notes of my assistant, Dr. H. C. Ohle.

Case I. *Chorea Nutans seu Vibratoria.*—M. K., ten years of age, was presented for treatment March 16, 1886. Both arms were affected with a constant and *regular* twitching, which also involved the head to a less degree. The twitching of the arms was as constant and rhythmical as in a severe case of palsy, and was not choreic in type. Patient gave a history of having been subject to severe attacks of malarial fever for several years. The child was well nourished, strong, and finely developed. On the morning of March 13, 1886, she was seized with a slight chill, followed by diarrhœa and fever; on the evening of the same day she developed slight tremor of the right arm, which gradually involved the left arm, and finally the head. There was no history of punishment or fright. From the day when the first symptoms appeared until she was presented for treatment, the twitchings became so exaggerated in force and frequency that the child could not obtain sleep or rest. No other portion of the body was affected.

On examination, all the organs were apparently in

a healthy condition, functions properly performed, and her appetite fairly good. Treatment: friction with sedative lotions, quiet and rest in bed, hot douches to her spine; at night, potass. bromide to induce sleep, succ. conium, Fowler's solution, and bitter tonics. By March 25th, under this treatment the twitchings of head had entirely disappeared, and the tremor in the arms was much less pronounced and exhausting. April 5th, the tremor had entirely disappeared, leaving the general health in as good condition as could be expected after three weeks' close confinement to bed. She was discharged cured, with instructions to continue for several weeks the treatment prescribed.

Remarks. This little girl showed, in a highly exaggerated form, the movements of a marked case of paralysis agitans. The motions of the head and arms were rhythmical and violent. The lower extremities were not disturbed. It was considered necessary to treat the case in bed, yet it was impossible for her to lie down with any comfort, for the movements were continuous, except during the time when she was actually asleep. Toward the end of the attack the movements became more choreic in character. The hot spinal douche was more productive of sedative effect than any other remedy. There was no history of rheumatism, and in chorea complicated by this disease I have learned to look for general choreic symptoms. The pathological condition was evidently confined to the upper portion of the spinal cord, for we could hardly suppose the motor centres in each hemisphere to have been similarly affected.

Case II. *Post-hemiplegic Chorea.*—C. H., six years of age, was presented for treatment March 15, 1886. She was affected with apparent paralysis on the right side of the body, involving both the right arm and leg; in addition, she was completely aphasic. On inquiry, it was learned that she was quite healthy and robust until last fall, when she suffered with a protracted attack of malarial fever, which debilitated her very much. She was considered well, however, when, on Feb. 19th, of this year, she was badly frightened by a pet monkey, which attacked her, and attempted to bite her. The mother claims that she was thrown into a spasm; when she recovered from this attack it was found that she had lost her speech, and was paralyzed on the right side. After a time, choreic movements began to develop, which were, however, slight in degree. This condition gradually grew worse. She lost interest in her play, and became stupid. On examination, I found a right hemiplegia, with inability to pronounce even the simplest words; she could not protrude her tongue and hold it still, and the affected side showed decided choreic twitchings. The child was very anæmic, restless at night, and had loss of appetite. The case was diagnosticated as a post-hemiplegic chorea, and treated with mercurial inunction, and ammonium carbonate in solution. Potassium bromide was given at night, to induce sleep. She was ordered to rest quietly in bed, and a hot spinal douche at night. Under this regimen the child recovered with remarkable rapidity; her appetite improved, and with it her general condition. The functions of her limbs have again been restored; she can pronounce words sufficiently well and clearly to be readily understood, and a speedy and complete recovery is anticipated.

On referring to the Dispensary Case Book, I find that the child was discharged well in the latter part of April.

Remarks. In this case of hemi-chorea, resulting from a unilateral brain lesion, we have the reverse of the usual order of symptoms. In severe cases of hemi-chorea we find, after some weeks, a resulting paresis in the muscles of the diseased side, which almost amounts to a hemiplegia, and in this case we find a right hemiplegia and aphasia, followed by a decided chorea in the paralyzed side. The improvement in the case, however, proves that the brain lesion was functional, rather than organic, and gives an interesting lesson in prognosis. The minute embolism theory would seem to give the most reasonable pathology for the chorea, and the transitory stage of hemiplegia was most likely due to some gross circulatory lesion of the brain.

Case III. *Chorea with Histrionic Spasm.*—F. K., fifteen years of age, presented himself for treatment at this Dispensary February 26, 1886. He was well developed for his age, but anæmic and apparently poorly nourished. He gave the following history: About six weeks previous to the date mentioned, his appetite began to fail, and he noticed a twitching of his left eyelid, which he could not control. Then he found that he would drop articles which he held in his hand; this occurred so often that he was compelled to stop work. The twitchings of his left eyelid became aggravated, becoming more frequent in number and longer in duration, the right eyelids not being affected at all; the irregular movements of both arms increased in violence, and finally extended to the legs. On examination, I found that the muscles of the left side of the face, particularly of the left eyelid, in less degree, and the muscles of left side of the mouth, were affected by clonic spasms, the attacks following each other in rapid succession, with intervals of rest, during which the movements of the left side of the face were normal. At the same time both arms were found affected with choreic movements of a mild type; also both legs, though in a less degree. The right side of his face was perfectly normal; his speech was not at all affected, nor did we find any choreic movements of the muscles of either side of his face. This is the first attack of the kind, and he had otherwise been healthy. He was ordered to remain as quiet as possible, and to rest, retiring early, and remaining in bed late in the morning. Sponge baths daily, to be followed by rubbing with a coarse towel. He was ordered nutritious and easily digestible food, and bitter tonics and iron preparations, in connection with conium, were prescribed in full doses. This treatment was followed by marked improvement at the end of one week. This was kept up, with slight modifications, for one month, the patient being discharged March 25th, apparently entirely well.

Remarks. The convulsive tic or histrionic spasm in this case was so marked and so entirely different from the movement of the muscles of the extremities, that it looked as if two distinct diseases were present. If both these morbid movements were brought on by the same cause, certainly the local irritation of the left motor nerve of the face was much greater than the impression which produced the choreic movements of the arms and legs. The spasms of the muscles of the left side of the face were symmetrical and paroxysmal, the movements of the other muscles were irregular and choreic in character. The symptoms of central origin, as demonstrated by the disturbance in the function of a motor cranial nerve, differed entirely in nature and intensity from the symp-

toms of spinal origin, as manifested by the exaggerated movements of the extremities. And yet the prompt and satisfactory improvement of all symptoms under a general treatment, seems to prove that the cranial spasm and the spinal incoördination were due to the same cause.

MEDICAL PROGRESS.

Cold Baths in Scarlatina.—Molière presents two cases in which cold baths were successfully employed in the treatment of the hyperthermic stage of scarlatina. The baths were of short duration (five to eight minutes) and of a temperature of approximately 72° F. One of the patients manifested a very grave angina with considerable hypertrophy of the ganglia of the neck, and the other suffered from gangrenous angina. Neither pneumonia nor pericarditis was developed, and an albuminuria which had existed in one of the patients, disappeared quite rapidly.—*Gazette Hebdomadaire*, September 17, 1886.

A Case of Rapid Pleural Effusion Treated by Antiseptic Incision.—Dr. Albert Wilson narrates in the *Lancet* of October 9, 1886, the following case, which is of interest, as it shows the advantage of an incision made during the early stage of pleural effusion before it had become a case of empyema. In fact, the effusion was so large and so rapid, and the dyspnœa and cardiac depression were so great, that the case would never have reached the stage of empyema if prompt operative treatment had been delayed.

The patient, Mrs. B., aged thirty-five, was first seen by me on March 3, 1886. She complained of breathlessness and increased cough, and she had been ill nearly a week. There had been no rigors; the pulse was 140, small and weak; the expectoration was mucous, slightly rusty; respiration 40; temperature under the tongue 102°. On examining the chest, the left base was dull on percussion. The front of the chest was normal in all respects. Auscultation: At the right base there were moist râles and crepitations; at the left base there were no respiratory sounds audible; vocal resonance was increased over the right base, whilst it was ægophonic over the left base; vocal fremitus was increased over the right base, but absent over the left. The absence of vocal fremitus decided the diagnosis as pleurisy and pneumonia.

March 4. The dulness is higher posteriorly, and in the axillary line there is also dulness in front from the left side when she sits up. The first sound, which is weak, is loudest behind the sternum. Temperature 101°; pulse 140; respiration 46.

5th. General condition worse, and increased effusion. Absolute dulness at and below the third rib in front, and from a line parallel with the fourth dorsal vertebra behind. The right chest is normal, except for cardiac dulness over the fourth right costal cartilage. The apex of the heart is now almost under the right mamma. There is a total absence of respiratory sounds all over the left chest, both back and front, except above and just below the clavicle. Ægophony is well marked at the angle of the left scapula, the vocal resonance is altered in front, vocal fremitus is absent on the left side, and there are moist sounds over the right base. Temperature 101°; respiration 48; pulse 140. The pulse tracing shows a very small wave, due to the feeble cardiac impulse and the contracted arteries. Operative treatment was now imperative. Being a disciple of Lister, I did not feel justified in opening this large cavity without the spray, as it was a small foul room, and the impure air entering the pleural cavity would be very dangerous and certain to cause suppuration. Further, to wash out the cavity, which I had allowed to become septic, would be an unnecessary labor for me, and a needless and a rather dangerous entertainment for the patient. I preferred prevention to cure. I made an incision between the seventh and eighth ribs posteriorly to the axillary line. Clear serum poured forth in abundance; more than five pints were collected and about a pint was wasted. Air entered the chest freely. When I introduced my finger through the ribs, I could not reach the lung for at least half an hour after the incision was made. When the lung did expand the surface of the pleura was found to be quite rough. A tube four inches long was inserted downward and backward, and I applied a small dressing of boracic lint soaked in mercurial solution. Within an hour the heart sounds were to be heard under the left breast. Friction was heard posteriorly as soon as the pleural surfaces were apposed. The friction gradually appeared from above downward, as the expansion of the lung was very gradual, and when I left it had not fully expanded at the base, which I proved with my finger. The pulse tracings, taken every few minutes, were very interesting. Before the operation it was a slight deviation from a straight line, being so feeble. Soon after the operation the pulse wave expanded, getting larger and fuller, until there was a full, sharp, apex systolic wave with a marked dicrotic wave, showing low arterial tension, due to the relaxation of the arteries and the removal of the pressure on the heart and main vessels.

6th. Temperature 101°; pulse 120; respiration 32. The wound was dressed under the spray. There was a free serous discharge through the tube, and the air entered with inspiration. The physical signs of pleurisy are well marked.

7th. Temperature 101°; pulse 120; respiration 26. Wound dressed and tube removed. I inserted my finger to feel the pleura. It felt rough and spongy, like placenta. I passed my finger round, separating the adhesions of the two surfaces, and it reminded me of a case of placenta prævia. It was the adhesion of the surfaces that determined me to remove the tube.

8th. Temperature 101°; pulse 108; respiration 26.

10th. Temperature 100°; pulse 98; respiration 24. Wound dressed. Very little thin serous discharges. Physical signs normal over both lungs. I could not trace the cause of the slow fall in temperature. The patient, though very weak, is doing well considering that she was at death's door before I operated.

15th. Temperature 99°; pulse 90; respiration 20. Wound dressed, and healing satisfactorily. Before the operation I measured each side of the chest from the anterior to the posterior mesial line just below the mammæ. The right half was 16 inches, the left 17½ inches. To-day, five days after the operation, each side measures 16 inches alike. The spine is perfectly straight, and the left chest is not shrunken. These results could not be attained by aspiration, however

skilfully done. The patient was soon restored to perfect health.

The Treatment of Thread-worms in Children.—Dr. Sidney Martin writes as follows to *The Practitioner* of October, 1886:

The complete cure of thread-worms in children is often very difficult. While the ordinary methods used, such as rectal injections of salt and water, infusions of quassia, and other remedies, do good for a time, yet they often fail to relieve the attendant symptoms of "worms," symptoms usually very irregular, and in some cases severe, in character. In many cases, though the irritation about the anus is relieved by injections, the irregularity of the bowels and the disturbance of sleep remain the same. This is probably due to the fact that the habitat of the worms is higher up in the large intestine, where no remedy introduced by the rectum can reach them.

In many cases I have found that rhubarb in small doses brings away large numbers of worms, and at the same time regulates the bowels: so that the use of injections may in most cases be dispensed with. The formula which I have found most useful is as follows, varying slightly with the age of the child:

R.—Tincturæ rhei	♏iij.
Magnesii carbonatis . . .	gr. iij.
Tincturæ zingiberis	♏j.
Aquam	ad ℥j.

This is to be taken twice or three times daily, according to the effect on the bowels. Whether the rhubarb acts as a vermicide or simply by "moving the worms on," I am unable to say.

Pharyngeal and Laryngeal "Nystagmus."—Dr. Herbert R. Spencer writes as follows to the *Lancet* of October 9, 1886:

I am indebted to Dr. Gowers for permission to publish the following observations I have made on a patient under his care at University College Hospital. The patient, a girl aged twelve, has a cerebral tumor, and presents the symptoms of reeling gait (with a tendency to fall backward and to one side, usually the right), vertigo, intense occipital headache, constipation, vomiting, ocular nystagmus, but no optic neuritis. The pulse is usually 100. These symptoms have been present for the last fifteen months. The ocular nystagmus is vertical and horizontal, occurs at the rate of 180 to the minute, is slightly increased in frequency during accommodation for very near, or in looking at far distant objects. On examining the throat, I noticed the superior constrictor of the pharynx to be in a state of constant rhythmical movement in a horizontal direction, as if the posterior pharyngeal curtain were being rapidly drawn together, the twitchings occurring at the same rate as the movement of the eyes, 180 to the minute. The movement does not affect the soft palate or pillars of the fauces, the faintest possible tremor only being transmitted to them from the action of the adjacent constrictor. By pressing the point of a quill pen againt the pharynx and pivoting the quill on a pin held fixed against the upper teeth, I have been able to write with the feather end a tracing of the movement on sphygmograph paper. The laryngeal muscles are similarly affected. The arytenoid cartilages are seen rapidly ghding to and from each other synchronously with the movement of the pharynx. When the patient is breathing quietly the main movement of widening the glottis during inspiration is interrupted by slight twitches, and similarly the movement of respiration. When the patient stops breathing the cords gradually close with five or six contractions, till they finally lie parallel and close to each other; here they remain, undergoing only a slight tremor till the patient recommences to breathe. I have had this patient under observation for over two months, and the movement has always been present. There is now a slight alteration in the state of the larynx, in that the left cord twitches more than the right, and the cords do not so nearly close when the patient stops breathing. I am not aware that a movement of this kind has been previously described, and I am anxious that it should be looked for in cases of intracranial tumor, so that its localizing value may be determined. It is possible it may throw some light on the etiology of ocular nystagmus, and it may be of value to the surgeon, perhaps, in showing pressure on the medulla, and so assist in the diagnosis of the position of a cerebellar tumor. As regards the term "nystagmus" applied to the pharynx and larynx, its association and synchronism with the ocular nystagmus, and the fact that movement of the eyes in a horizontal direction is called "nodding," would seem to warrant a slight departure from strict etymological accuracy.

Cocaine in Gonorrhœal Ophthalmia.—A. Leahy, I.M.S., recommends a trial of cocaine in gonorrhœal ophthalmia. In his hands he has found that the ocular and circumorbital pain is much diminished, the chemosis reduced, and the congestion of the conjunctival vessels much diminished. He used the following preparation: Cocain. sulph. 4 gr., atrop. sulph. ½ gr., vaseline 100 gr. To be applied with a camel's hair brush.—*Indian Med. Gazette*, July, 1886.

Suprapubic Lithotomy.—Thomas Annandale, F.R.S.E., writes as follows in the *British Medical Journal* of October 9, 1886:

In the *Journal* of January 2d of this year, I published an account of a new method of performing suprapubic lithotomy in male children, and I reported a case in illustration. Since then, further experience has convinced me that this method is an improvement in the case of adults, as well as in the case of children; and I therefore trust that some of my surgical friends will try it and report their experience.

Briefly stated, the steps of the operation are:

1. The gradual and thorough dilatation of the bladder by the injection of some antiseptic fluid.

2. The introduction of a lithotrite, and the seizing and fixing of the stone in its blades.

3. The depression of the handle of the lithotrite, so as to press the stone against the abdominal wall immediately above the pubes in the middle line.

4. Cutting down through the abdominal wall, in the middle line, upon the pubes, and immediately above it, in the usual way, until the bladder is reached.

5. Depressing the handle of the lithotrite still more, so as to stretch the wall of the bladder over the stone, and make it prominent at the wound.

6. Incising the stretched bladder wall upon the stone, to a sufficient extent, in a direction downward, and then protruding, through the opening, the stone and blades of the lithotrite.

7. Gently opening the blades of the lithotrite and removing the stone, and in withdrawing the lithotrite, catching one end of an India-rubber catheter in its blades, and bringing it out through the urethral orifice, the other end of the catheter being left in the bladder.

8. Stitching the wound in the abdominal wall, and introducing a drainage tube at its lower end.

If the wound in the bladder wall be small, I think it is better not to stitch it; but if it be large, two or more catgut sutures should be inserted.

The dilatation of the rectum is not, in my opinion, required, and if employed, only complicates the operation.

Failure of the Bacterial Treatment of Consumption.—At a recent meeting of the Odessa Medical Society (*Proceedings of the Odessa Medical Society*, 1886, No. 6, pp. 1–12), Dr. Filipovitch, of the Odessa Town Hospital, made a very instructive communication on six cases of advanced pulmonary phthisis, which had been treated by him after the bacterio-therapeutic method recommended by Professor Arnaldo Cantani (see the *British Medical Journal*, 1885, August 29th and Nov. 18th; and 1886, March 6th and 13th). Having obtained by fractional cultivation, pure cultures of the bacterium termo in meat broth, the author took five cubic centimetres of the bacterial fluid, diluted them with ten cubic centimetres of boiled water (37° C.), aromatized the mixture with one or two drops of tincture of peppermint (to disguise an offensive odor), and made the patient inhale the whole by means of Richardson's spray-producer. The inhalations were repeated twice daily. In one of the patients, the experiment was given up at the end of a week, since the man's state commenced to grow worse from the very beginning, and fever, steadily increasing bronchitis, and hæmoptysis had developed. Three other patients died under the treatment, one after fifteen days' inhalations, another after seventeen days, and the third after twenty-five days. The remaining two patients left the hospital after treatment for seventeen and fifty-two days respectively. In none of them was anything like a diminution of the expectoration observed. In one of the fatal cases, shortly before death, the sputum became more profuse, more liquid, and assumed a characteristic bad odor, resembling that of a pure culture of the bacterium termo. At the necropsy, numerous excavations "represented, as it were, a culture of the bacterium;" the spleen was enlarged, flabby, partly of a dark red, partly of a pale red color; the liver was also enlarged and anæmic. In the non-fatal cases, nothing like a diminution or disappearance of the tubercle bacilli from the sputum was detected. In the patient who was treated by the inhalation for more than seven successive weeks, the number of bacilli was distinctly increased during the seventh week. In none of the cases was any influence exerted by this treatment on the temperature, or perspiration, or the body-weight discovered. Finally, Dr. Filipovitch came to the general conclusion that "no good whatever may be expected from the treatment of tuberculosis by the inoculation of the bacterium termo;" while some of his cases seemed to point out that the infection of the human system with the putrefactive bacteria might prove not nearly so harmless as had been alleged.

Cure of Rheumatic Tetanus by Pilocarpine.—Brünner describes the case of a peasant woman aged forty, suffering from rheumatic tetanus, whom he treated for five days without result, despite the administration of morphia, chloral, quinine, etc. Pilocarpine was then used in the single daily dose of one-third of one grain. The induced perspiration was moderate, but the increased salivary secretion was very great. Chloral hydrate was given at night. On the ninth day of treatment the convulsions disappeared completely.—*Centralb. f. klin. Med.*, September 18, 1886.

Clinical Examination of Urine in Children's Diseases.—In the preliminary note in the *Vratch*, Nos. 44 and 45, 1885, p. 730, Dr. Alexandra J. Eckert, house-physician to the Elizavetinskaia Infirmary for Children, in St. Petersburg, states that she had made 1500 analyses of urine in 104 children, in order to study its changes under the influence of various affections attacking the child's organism, and to determine quantitatively the albuminoid losses sustained by the system in febrile albuminuria. The albumen in the urine was estimated after a method based on Heller's test, and introduced simultaneously by Professor Roberts, of Manchester, and Dr. J. J. Stolnikoff, of St. Petersburg (see Professor V. A. Manasseïn's *Sbornik Rabot*, Part II., 1877). The author divides her cases into four groups.

The first group consists of the following cases—*a. Typhus fever* (seven cases in children, aged from 6 to 15). During the febrile period the urine was scanty, highly colored, and of a high specific gravity; in five of seven cases albuminuria, lasting from four to twenty-one days was present, the quantity of albumen varying from 0.024 to 0.502 per cent. It rapidly disappeared with the advent of pyrexia. *b. Enteric fever* (nineteen cases in patients aged from 3 to 14). In fourteen of them albumen was found during the febrile period for four to fourteen days, its quantity varying from mere traces to 0.7 per cent. *c. Relapsing fever* (two cases, aged 8 and 11). No albuminuria was observed. *d. Intermittent fever* (three cases, aged 9 to 12). No albuminuria was found.

A second group included—*a. Croupous pneumonia* in twelve patients, aged from 8 months to 12 years, with scanty, highly colored, and very dense urine during the febrile stage. In ten of them from a mere trace to 0.104 per cent. of albumen was found at the time of high temperature, for four to seven days. *b. Catarrhal pneumonia*, in two patients, aged 7 and 8. In the former, who had fever of an intermittent type and ultimately recovered, no albumen was found in his scanty urine of a high specific gravity. In the other, 0.064 per cent. of albumen appeared shortly before his death. *c. Pulmonary tuberculosis.* In all four fatal cases (in children aged 2½ to 10) albuminuria was present, varying from traces to 0.84 per cent. *d. Chronic pneumonia* (one case) and *exudative pleurisy* (one) without albuminuria.

A third group is composed of—*a. Measles*, two cases, aged 3 and 10, with albuminuria of one to three days' duration; the amount of albumen varied from 0.012 to 0.067 per cent. *b. Diphtheria*, faucial; two cases, aged 6 and 10, with albuminuria of one to five days' duration,

varying from 0.024 to 0.144 per cent. *c. Scarlet fever*, six cases, aged 3½ to 8. In five, albuminuria was observed, and that in two forms—as a *febrile* one, during breaking out of the rash, of one to seven days' duration, and with 0.012 to 0.044 per cent. of albuminuria; and as a *nephritic* one in the third week of the disease, of a monthly or longer duration, with 0.012 to 0.244 per cent. of albumen. *d. Parenchymatous nephritis*, eight cases. In seven, albuminuria of one to six weeks' duration was found, with 0.024 to 0.164 per cent. of albumen.

The fourth group consists of—*a*, a case of *catarrhal angina with erysipelas*, no albumen; three cases of *tonsillitis*, 0.052 per cent. of albumen in one; and four cases of *intestinal catarrh*, 0.052 to 0.184 per cent. in one. *b. Non febrile internal diseases*—scurvy, aortic stenosis, anæmia, cerebral tumor, dyspepsia, chorea, icterus, etc., seven patients, aged 5 to 14. Only in a case of syphilitic interstitial hepatitis were some traces of albumen noted. *c. External affections*, in twenty cases, aged from 9 months to 16 years. No albumen was detected in femoral phlegmon, in eczema with nettle-rash, in a case of femoral osteotomy, in fracture of the femur, and in rheumatic synovitis of the knee. Albumen was present in a fatal case of extensive burn, 0.184 per cent.; of multiple lymphoma, 0.064 per cent.; rachitis with bedsores, 0.008 to 0.124 per cent. It was observed also in three of eight cases of caries, in quantity varying from traces to 0.024 per cent. Finally, albumen (from 0.024 to 0.244 per cent.) was detected also in three cases of vesical stone and cystitis, its source being of course not in the kidneys.

The general conclusions reached by the diligent author are given as follows: 1. All affections considerably disturbing nutrition of the child's system, and running their course in association with a high febrile state, give rise to albuminuria in an overwhelming majority of cases. 2. The characteristics of albuminuria are usually dependent upon the intensity of the morbid process, and the duration of the febrile period. 3. As a rule, albumen rapidly disappears after abatement or cessation of fever. 4. Non-febrile affections, as well as those accompanied only by slight fleeting febrile movements, seldom give rise to albuminuria of any considerable degree; and when they cause albuminuria, it occurs only as a phenomenon of very short duration.—*The London Medical Record*, Oct. 15, 1886.

STRYCHNIA IN DIPSOMANIA.—The treatment of various forms of the alcoholic habit by means of strychnine, which has been recommended from theoretical and clinical researches by Luton, Giacomini, Magnus Huss, Morey, Lecuyé, Jaillet, Minoz, Dujardin-Beaumetz, and Amagat, has recently been tried by some Russian practitioners, and found to give gratifying results. DR. POPOFF, writing in the *Vratch* (No. 10, 1886), after giving a *résumé* of the results obtained by the French and Italian observers above named, mentions some cases of dipsomania which he had successfully treated in the same way, and in the last number of the *Vratch* (No. 38), DR. K. K. TOLVINSKI describes the case of a man, aged thirty-four, belonging to a neurotic family, very anæmic, but with no organic disease, who had drunk hard for many years, and with whom of late the outbreaks had been as frequent as two or three every month. He was treated with chloral, bromide of potassium, and opium, with but little success, his extreme distress, desire for drink, nausea, vomiting, and unusual weakness being unaffected. On the last occasion, when he had been drinking for some days, Dr. Tolvinski decided to make trial of strychnine, and began with the sixtieth of a grain of the nitrate in pilules three times a day, and did not prohibit spirits. The next day the man felt better, and asked for wine; but the sleeplessness, the want of appetite, and nausea and vomiting still continued, though in a somewhat less severe degree. Four days after the commencement of the strychnine treatment the patient had greatly improved in every way, and was soon afterward able to resume his work. He continued to take the sixtieth of a grain twice a day for six weeks, and during the four months which have elapsed since the attack he has had no inclination for drink. Upon this case the editor of the *Vratch*, PROF. MANASSEIN, who holds the chair of Special Pathology and Therapeutics in the Imperial Military Academy at St. Petersburg, remarks: "There is no doubt that, with abundant materials at hand, observations on the effect of strychnine on different forms of alcoholism will in the immediate future be accumulated in considerable numbers. It may be desirable as a preliminary to distinguish the different classes of the affection: (1) Anæmic cases (literally 'white fever'); (2) actual drunkenness; (3) constant drinking without symptoms of chronic alcoholism; (4) chronic alcoholism. It is very possible that the effect of strychnine on these very dissimilar conditions may be different, and if all these forms are confounded together, as is done by many writers, it can only lead to confusion when the strychnine treatment is mentioned." Prof. Manassein goes on to relate the case of a cook, an honest, respectable woman of forty-five, who was subject to attacks of insuperable craving for drink, which attacks were preceded by a depressed and highly irritable condition. They gradually increased in frequency, so that latterly they came on about every fortnight. Sulphate of strychnine was ordered in pills from the sixtieth to the thirtieth of a grain after breakfast and dinner. During four months of the strychnine treatment the patient continued in excellent health, not only having no outbursts, but not even experiencing any inclination for drink.

In another Russian medical journal, the *Meditsinskoe Obozrenie*, DR. PARTSEVSKI gives an account of nine cases of acute and chronic alcoholism treated by means of hypodermatic injections of strychnine. Seven of the cases gave excellent results, but in the remaining two cases the strychnine had to be discontinued and chloral substituted. In the majority of cases the treatment began to take effect very quickly on the appetite, sleeplessness, and hallucinations. The trembling of the hands, too, entirely disappeared, and the general irritability subsided. The author says that under no other kind of treatment has he found patients recover so quickly from an attack. Even the blueness of the skin and the puffiness of the face and hands quickly disappeared, and the quantity of urine became notably increased. The dose given is not very clearly stated, but the number of injections required in the different cases was usually from four to eight. In only one case were fifteen necessary. They were given twice a day.—*The Lancet*, October 16, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 6, 1886.

CEREBRAL SURGERY.

ON November 25, 1884, MR. RICKMAN J. GODLEE removed a glioma, the size of a walnut, from the ascending parietal convolution, where its presence had been localized by Dr. A. Hughes Bennett. The abundant hemorrhage was arrested by the galvanic cautery, and the edges of the superficial wound were approximated by sutures. The patient progressed well for thirty-one days, despite the formation of a hernia cerebri, when he was suddenly seized with a rigor and symptoms of cerebral inflammation, and died precisely four weeks after the operation, the fatal issue being due to a local meningitis, which, as admitted by Mr. Godlee, was the result of putrefaction from want of proper attention to antiseptic precautions.

About a year prior to the operation of Godlee, DR. WILLIAM MACEWEN, of Glasgow, cut into the ascending frontal convolution toward the paracentral lobule, and evacuated a broken-down gumma. The patient made a rapid recovery, and was able to attend to her household duties at the end of two months. Both cases demonstrated, first, that small, as well as large, lesions can be accurately located, and, secondly, that incisions into the motor area not far removed from the cortex can be made, with as much prospect of success as incisions into other organs or tissues, provided a vital spot is not injured.

As the natural outcome of the reports of these cases, and of still further recent advances in cerebral localization—a study with which the names of Hughlings Jackson and Ferrier are conspicuous—the profession was led to anticipate a great future for brain surgery. That these hopes have been fully realized will become apparent after a perusal of a paper read at the late meeting of the British Medical Association, at Brighton, by MR. VICTOR HORSLEY, and published in the *British Medical Journal* for October 9th. In this communication that surgeon gives the details of three successful operations upon the motor area of the brain. In one of these a small tubercular tumor, along with more than half an inch of the surrounding cerebral tissue, was removed, and five-sixths of the external wound healed by the first intention in a week. In a second case, one of epilepsy, a mass of cicatricial tissue and the adjacent brain substance were excised, and the wound was firmly united in seven days; while in the third case, also one of epilepsy, fragments of bone and a wedge-shaped cavity were removed, and the wound was completely healed in four days.

In addition to these cases, Mr. Horsley, on September 23d, successfully extirpated from the motor region of the right hemisphere a tumor which weighed four and one half ounces, was three inches long, two and one-half inches broad, and two inches deep. The wound had closed in four days.

These brilliant operations demonstrate the comparative harmlessness of trephining the skull and incising or cutting out the brain tissue under antiseptic precautions, as well as the great value of the scientific application of facts derived from experimental researches on the cortex of monkeys to operations on man. Indeed, Mr. Horsley states that the repair of wounds in the lower animals does not differ from that in the human subject, and that the stereotyped views on this subject, namely, that safe deductions cannot be made from one to the other, are utterly groundless, and have done much to hinder the progress of brain surgery.

It is impossible, in the limits of this article, to discuss the various symptoms which led Mr. Horsley to locate the lesions which he so successfully attacked, so that we shall limit ourselves to describing his method of operating, as a future guide to practical surgeons, particularly as it differs in some important points from the practice ordinarily pursued.

On the day before the operation the head is shaved and washed with soft soap, and then with ether, after which the position of the lesion is ascertained by measurement, and marked on the scalp. The head is then covered for twelve hours with lint soaked in a five per cent. carbolic solution, oiled silk, and cotton-wool. On the previous evening a purgative is administered, and followed by an enema on the morning of the operation.

Ether is rejected, unless there is a heart-complication, on account of its tendency to cause cerebral excitement. Before administering chloroform, a quarter of a grain of morphia is thrown under the skin, with the double object of diminishing the

quantity of the anæsthetic used in the operation, and of inducing contraction of the arterioles of the brain, through which important action of the drug the incisions into the cortex are accompanied by very little oozing.

Strict antiseptic precautions are, of course, observed throughout, and Lister's original plan as to the agents employed and their manner of application is preferred, although sublimate wool, the skin being protected by carbolic gauze, may be used.

The incision through the superficial coverings of the skull is semilunar, and so planned as not to divide the main arterial trunks supplying that portion of the scalp. The periosteum, on the other hand, is reflected by a crucial cut from an area corresponding to the first trephine-hole, and subsequently as more bone is removed.

In cutting away the bone a hole is made with a trephine, two inches in diameter, at each extremity of the area to be excised; the sides of the area are then divided through one-half the thickness of the bone with a Hey's saw; and the section is completed with a strong cutting forceps. If it be possible to preserve the dura mater intact, the buttons of bone should be preserved in warm aseptic sponges, and be placed, after having been divided into small fragments, between the dura mater and the skin, as originally practised by Macewen, to insure osseous repair of the loss of substance.

In connection with the removal of the bone, we may call attention to an important fact pointed out by Dr. W. Hale White, in *Guy's Hospital Reports*, vol. xliii., 1885. In the post-mortem examinations which he made of subjects dead of tumors of the brain, he found almost invariably that the bones of the vertex were very light and thin, although quite hard, the thinness in extreme cases being the same as that of cardboard. Hence, in using so large a trephine as that recommended by Horsley upon so uneven a surface as the calvaria, the atrophied condition of the bones should be borne in mind, lest the cranial contents be injured.

The dura mater is incised around four-fifths of the circumference of the area exposed at one-eighth of an inch distant from the edge of the wound of the bone, in order that its edges may afterward be sutured. The incision is begun with a scalpel and finished by blunt-pointed scissors, great care being taken not to wound the subjacent membranes. The main branches of the middle meningeal artery are secured by ligatures passed through the dura mater just outside its cut edge.

After the incision of the dura mater the brain bulges into the wound. The existence of a slight yellowish tinge, or of lividity, will indicate the presence of a tumor beneath the cortex in the corona radiata. In removing the morbid growth the incision is made exactly vertical to the surface, or parallel with the course of the arterioles, and directed, when necessary, into the corona radiata in such a way as to prevent damage to the fibres coming from the cortex, and surrounding the seat of the operation. All bleeding vessels are ligatured.

After the removal of a portion of the brain, there is not left, as one would suppose, a gap with vertical sides, since the floor of the gap bulges almost to a level with the surrounding cortex. In addition, the cut edges become slightly everted, and they are extruded into the opening in the skull if less brain than bone is removed. In other words, there is a tendency to hernia cerebri, and it is for this reason that the semilunar flap of the scalp, when united, offers sufficient resistance to the upward pushing brain, while the point of meeting of the four angles of a crucial incision never does. All oozing having been arrested by gentle pressure with a soft sponge, a drainage tube is inserted into the most dependent portion of the wound, and the latter closed with silk sutures inserted at distances of two-fifths of an inch, and, between these, horsehairs. During the first twenty-four hours there is a steady oozing of blood and serous fluid, but at the end of this time the tube is removed, and the wound carefully dressed, firm but gentle pressure being made over the centre of the flap. At the expiration of five or six days, the wound may be covered with a little powdered boracic acid, cotton-wool, and collodion; and the stitches may be removed at any time after the first week.

With the single exception of the antiseptic agent used by Mr. Horsley, we consider that his plan of operating in all its details is most judicious. The exhibition of morphia and the employment of ligatures for the prevention and arrest of hemorrhage, instead of the galvanic cautery resorted to by Godlee; the semilunar superficial flap, which can be laid down like the lid of a box; the suturing of the dura mater; and the early withdrawal of the drainage tube are rules which are in perfect accord with the guiding principles of the management of wounds elsewhere. The short period of drainage is the one point regarding which he will probably be unfavorably criticised. His reasons, however, for this action are, to us, conclusive. He states that he wishes to obtain a certain amount of tension of wound-exudation within the cavity. First, because it reduces the tendency to hernia cerebri; secondly, because it compels the lymphatics to remove the fluid, thereby facilitating primary union of the skin wound; and, thirdly, because it acts as a kind of scaffold for the building up of a non-inflammatory connective tissue by which the brain is separated from the flap of skin. Whether or not these reasons be generally deemed sufficient for the course he pursues, it must be re-

membered that all of his cases have terminated favorably, and that it will be best to follow him in this particular until increasing experience leads us to modify the practice.

THE EXTRACTION OF THE AFTER-COMING HEAD.

From time to time, during the past few years, an animated discussion has arisen in the German medical press, as to the comparative merits of manual and instrumental extraction of the after-coming head in breech presentations, and after turning, especially in cases of contracted pelvis. Credé has been the foremost advocate for the use of the forceps, while Schröder and his followers condemn this practice, and recommend manual extraction alone.

In a recent number of the *Berliner klinische Wochenschrift*, A. Martin declares himself also in favor of manual extraction; but, appreciating the danger to the child which undoubtedly attends the present manner of applying this method, he proposes a modification which he has practised in thirty-eight cases with very good results. Instead of the usual method of placing the finger of one hand in the child's mouth, and hooking the fingers of the other over its shoulders and then pulling vigorously, throwing all the strain on the lower jaw and cervical vertebra, Martin's plan is to introduce the middle finger of the hand, the palmar surface of which corresponds to the abdomen of the child, into the mouth, and make moderate traction upon the lower jaw, while the other hand is used to make powerful pressure upon the child's head externally and from above. Of thirty-eight children extracted, or rather expressed in this manner, seven, or eighteen per cent., were stillborn, a result better than that obtained by the forceps in the hands of Credé himself, who reports in the *Archiv für Gynäkologie*, Band xxv., sixteen cases, of which number four, or twenty-five per cent., were stillborn. In view, therefore, of the comparatively good results achieved, the wish expressed by Martin that the profession may at least deem this method worthy of trial will probably be gratified.

FRAUDULENT OPIUM CURES.

Among the many calls for sympathy occurring in a doctor's practice, few have a more valid claim than those of the unfortunate victims of the opium vice. The dose taken at first to alleviate pain gives relief so perfect, that if the suffering be due to chronic disease, the dosing, too, is almost sure to become chronic. The narcotic habit, with its attendant perversion of physical function and moral control, is accepted as the lesser evil. With the sense of moral obligation blunted, and the power of self-control impaired, the slave to opium drifts at the mercy of circumstances. But at some conjuncture the will is prompted to a decided effort to regain control, and he who can reinforce this resolution and tide the drifting man to solid ground is a benefactor indeed. Such recoveries have been made, but only through abstinence maintained by personal restraint, and supplemented by a supporting regimen of food, sleep, tonics, and, when necessary, stimulants. The man who would take advantage of the struggling opium victim at such a time, and, under the pretence of helping, only hold him longer in the stream, is deserving of most severe punishment.

This is the very offence of which nineteen persons are guilty, according to the recent report of the analyst to the Massachusetts State Board of Health, and some of the names given are not unfrequently found in the advertising columns of medical journals. Twenty samples of widely advertised opium "cures," including Baker's, Beck's, Collin's, H. H. Kane's, and others less known, were examined and all but one were found to contain morphine. The exception was "Keeley's Double Chloride of Gold Cure," which is exorbitantly expensive on account of the alleged presence of the precious metal, but which contained neither morphine nor gold.

The dupe of these so-called antidotes simply pays a higher price for his opium than he has hitherto done, the difference being the profit of the fraud. To crown the infamy of this business, the advertising circulars give endorsements which are in many cases published without the least shadow of authority.

The Journal of Comparative Medicine and Surgery, now in the seventh year of its existence, has just transferred its publication office to Philadelphia, and its last number appears in an enlarged form, and with marked evidence of improvement in every department. Dr. Huidekoper, of the Veterinary Department of the University of Pennsylvania, has joined Dr. Conklin on the editorial staff, and a number of our leading teachers of comparative medicine have consented to act as collaborators. The *Journal* is one in which the general practitioner will also find very much of interest. A glance through the present number shows a series of valuable original communications. The beautifully illustrated article by Mr. Bland Sutton, on "Tuberculosis in Birds," is of special value, and illustrates the wide zoölogical distribution of this fatal disease, which appears to be identical in birds and mammals.

During the past twelve years the veterinary profession of this country has developed rapidly, and the public is beginning to recognize its power and usefulness. Such an organ as the *Journal of Comparative Medicine* will represent its best interests, and deserves the support of all who would see this branch of the profession take its rightful position in the community.

OUR readers will remember the Dwight life insurance case, which was some time ago the subject of discussion in THE NEWS, and in which the decisions of the jury and the lower court were in favor of the family of the insured. Within a few days, the final court of appeal in the State of New York has given its decision, in which it affirms that the lower court was in error in not granting to the defendants—that is, the Germania Life Insurance Company—a nonsuit. The trial is, therefore, set aside. Whether there will be any further proceedings in the case is, of course, uncertain; but, so far as the Germania Life Insurance policies are concerned—*i. e.*, those which were especially in question at the trial—the affair is definitely settled against the family.

THE Louisiana State Board of Health on Sunday revoked the quarantine against all of Harrison County, Mississippi, except the town of Biloxi, which still remains under the ban.

THE German physicians of Philadelphia propose to organize "Der Deutsche Medicinische Verein von Philadelphia."

REVIEWS.

THE MEDICAL NEWS VISITING LIST FOR 1887. Philadelphia: Lea Brothers & Co., 1886.

THE MEDICAL NEWS VISITING LIST for 1887 has just been issued. In addition to the visiting list proper, it contains upward of fifty pages of memoranda, which are most useful to the practitioner in emergencies, such as a list of poisons and antidotes, rules for disinfection, for artificial respiration, a table of doses, a therapeutic table, lines for the ligature of arteries, a list of incompatibles, etc. A new and useful feature is the celluloid memoranda leaf, which is as flexible as paper, and pencil marks can be erased from it with rubber or moisture. The whole is handsomely bound in red seal leather with patent thumb-letter index for quick reference, and is of convenient size and weight for pocket use. The aim has been to make it an indispensable volume to the busy practitioner.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, October 11, 1886.

DR. L. A. STIMSON IN THE CHAIR.

DR. WM. T. BULL reported

TWO CASES OF ABDOMINAL SECTION FOR PENETRATING GUNSHOT WOUND OF THE ABDOMEN,

giving the history of the cases, and presenting his last patient before the Society. The first case proved fatal, and the operation was only performed to prevent a serious hemorrhage of the liver which was the result of the injury. The histories of these cases were as follows:

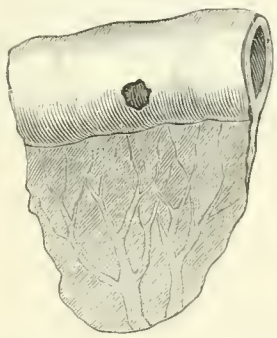
CASE I. *Wound of Liver; Laparotomy; Death after Operation.*—A clerk, fifty-seven years of age, of intemperate habits, shot himself in the abdomen, with a pistol of 32 calibre, about 9 A. M. on Jan. 10, 1885, and was brought to Chambers Street Hospital by ambulance two hours later. On admission he was suffering from shock and loss of blood, the surface of the body and extremities was cold and very pale, the pulse 100 and feeble, resp. 24, and temp. 94° (axillary). He was rational but dull; had vomited once the contents of the stomach, and had little or no pain. In the epigastric region was the entrance wound of the bullet, three inches above the umbilicus, and one and three-quarter inches to the left of the median line. The wound of exit was in the right side in the axillary line midway between the ribs and crest of ilium. There was no bleeding from either wound. Urine drawn was normal in appearance. Four hours later, notwithstanding every effort, his condition was worse: pulse (temporal) 134, resp. 28, temp. 97°. Seven hundred and fifty cubic centimetres of saline solution were infused into the cephalic vein in the course of twelve minutes. This was followed by improvement, and at the expiration of three hours the radial pulse was 112, of fair volume, resp. 24, temp. 96¼°. At 9.30 P. M., after consultation with Dr. Weir, I performed abdominal section. It was just seven and three-quarter hours after admission, and the general condition had undergone no decided change from that noted three hours after the infusion. From the situation of the two wounds, and the evident signs of hemorrhage, I inferred that the liver had been wounded, and undertook the operation in the hope of arresting the bleeding. The incision was made from an inch below the ensiform cartilage to three inches above the pubis, and showed at once that the bullet had entered the left lobe of the liver, cutting it nearly in two (transversely). The intestines were floating in bloody serum and clots. A few loops of uninjured intestine were drawn out in order to expose the right lobe of the liver, and the blood rapidly sponged out, but it welled up from beneath the liver as fast as it was removed. The pulse began to fail after the abdomen was opened, and before the cavity had been cleared so as to allow a satisfactory inspection, the patient expired, just half an hour from the time the administration of ether was begun. There were no other visceral wounds. The bullet had traversed the left lobe, as described, then passed through the round ligament, the lower edge of the right lobe and the abdominal wall. The vessels in the transverse fissure escaped injury.

CASE II. *Gunshot Wound of Intestine and Mesentery, with Hemorrhage; Laparotomy, with Suture of Intestine; Recovery.*—Daniel Mahoney, aged twenty-five years, sailor, was brought to the Chambers Street Hospital in a cab, August 12, 1886, at 7.40 P. M. He came into the reception-room without assistance, complaining only of pain in the abdomen while walking. Twenty minutes before, he had been shot during a friendly scuffle, with a pistol of 38 calibre. He was slightly pale, and was perspiring freely, and since the injury had felt some nausea, but had not vomited. The axillary temperature was 97°, pulse 96, full, resp. 26. The abdomen was normal to sight and touch, but for the presence of a bullet wound two inches below and two inches to the left of the umbilicus, in the vicinity of which it was tender on pressure. The skin about the wound was normal, the edges were blackened, and the lumen occupied by a clot of dried blood. The trowsers,

just below the waistband, and two shirts, were found to be pierced by the bullet, no trace of which could be found under the skin of the trunk. The urine was drawn: it was free from blood. Rectal examination was negative. After washing the skin thoroughly, the wound was covered with a compress of iodoform gauze and absorbent cotton, and gr. ⅓ morphine administered hypodermatically. The man had always been in good health, drank only occasionally, and was of excellent physique. The dangerous character of his wound was explained to him; and he consented at once to an operation.

Two hours later his condition was as follows: pulse 104, resp. 24, temp. 98°; no pain; slight rectal tenesmus; abdomen unchanged. A probe could not be introduced beyond the muscular layer. Hepatic dulness normal. No emphysema about the wound. He had made an ante-mortem statement to the coroner, and been visited by several friends. At 9.40 P. M. ether was administered by Dr. Tiernan; the operation begun fifteen minutes later. The wound was explored by an incision three inches long, and found to pass directly backward through the rectus muscle. The incision was then made in the median line from the umbilicus to the pubes. Coils of small intestine came at once into view. They were bathed in odorless, bloody serum, several ounces of which escaped from the cavity. As the general condition did not indicate any serious hemorrhage, I proceeded to examine the intestine without waiting to sponge out the cavity. About half the length of the small intestine was drawn out, rapidly sponged, inspected, and placed under warm towels, before a wound was discovered. Then a loop was met *through* which the ball had evidently passed. The wound on one side was evidently that of entrance (Fig. 1). It was as large

FIG. 1.

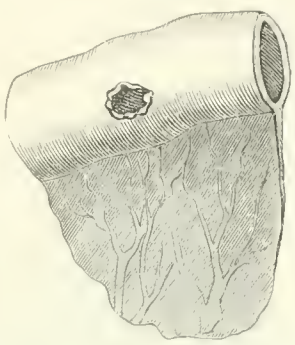


First perforating wound of small intestine.

as the top of a lead-pencil, its edges adhering, without prolapse of the mucous membrane. The other, directly opposite, and midway between the free and attached border of the gut, was twice as large, with a little fold of mucous membrane occupying its lumen (Fig. 2). There was no escape of feces. The gut was held up by an assistant, a sponge placed beneath each wound, and the abdominal incision protected by a large flat sponge, while the sutures were inserted after Lembert's method. The finest iron-dyed silk was employed. Three sutures sufficed for the first, and six for the second wound. Iodoform was rubbed along the line of suture.

Several more feet of small intestine were examined without finding any other signs of injury than half a dozen subperitoneal extravasations of blood, no greater

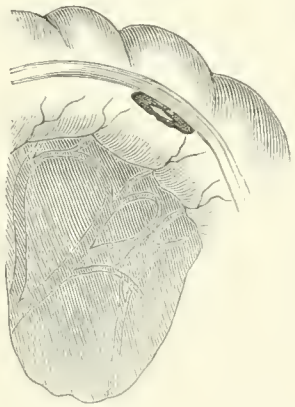
FIG. 2.



Second wound (of exit) opposite the preceding one.

in area than a pea. The mesentery was *dotted* with smaller extravasations. There was no decided congestion of the gut, nor any lymph exudation on its surface. The pelvis was then occupied by one or two coils of small intestine and the sigmoid flexure, while the cæcum projected from the right side, partly obscured by the small intestine. To examine the rest of the gut, I removed with the hand and sponges at least two tumblerfuls of clotted blood. It was then evident that there was hemorrhage from some vessel deep in the pelvis. It was not very active, for the pressure of a large sponge controlled it. All the small intestine that could be drawn out was then held under towels outside the wound, and the sigmoid flexure also exposed to view. A longitudinal wound, half an inch in length, was met with close to its attached border. The muscular coat was bared, but no mucous membrane was seen. (Fig. 3.) This wound

FIG. 3.

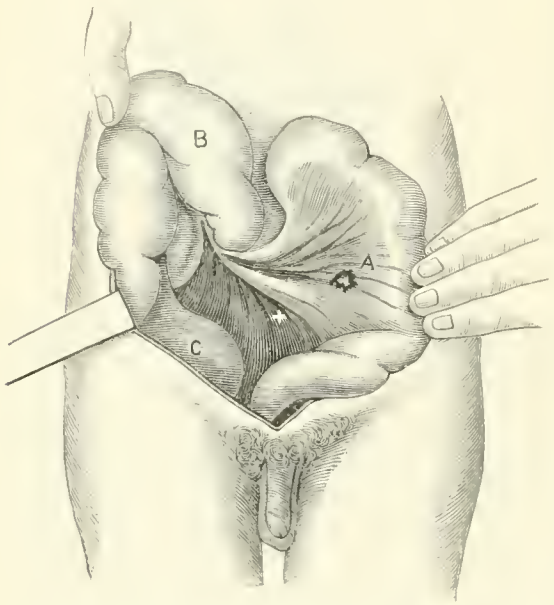


Third wound of sigmoid flexure. Perforation uncertain.

was closed with four sutures. The cæcum was now pushed out of the way, and a view obtained of the sigmoid mesocolon, and the source of the bleeding discovered to be a circular wound near to its attachment to the middle line, and fully three inches from the top of the gut. (Fig. 4.) When the mesocolon was made tense by traction on the flexure, the bleeding ceased; when relaxed, a stream of venous blood issued from the wound so copiously as to fill the cavity of the pelvis one-

third full several times before it was controlled. Pressure below the wound stopped it, but the vessel from which the blood issued could not be seen even after the wound was enlarged with scissors. The tissues on the

Fig. 4.



The sigmoid flexure drawn out, showing the situation of the two wounds of the mesocolon, *A* the superficial one involving the peritoneum only, † the deeper one, which was the source of hemorrhage.

lower edge, when pressure was effective, was finally grasped in a large "bite" with long artery clamps, a silk ligature passed by means of a curved needle under the blade of the forceps, and tied as the forceps were withdrawn. This controlled the bleeding. Above, and to the inner side of the wound, there was an extravasation of blood, which, as it was firmly clotted, was not interfered with. Another wound of the mesocolon stripping off its peritoneal coat over an area as large as a quarter-dollar was found close by. (Fig. 4.) This, and the preceding one, were not sutured, but rubbed thoroughly with iodoform. One of the appendiculæ epiploicæ, of good size, was found torn and bleeding at its extremity. It was tied at its base with catgut and cut off.

Considerable blood had been observed to come into the pelvis from the region of the cæcum, during the efforts to stop the hemorrhage already referred to, but on careful sponging there was found no fresh source of bleeding. A sponge in the grasp of a long forceps was passed into both lumbar and epigastric regions, and brought out perfectly clean. The omentum had not been seen up to this time, but the sponge drew it out from the left lumbar region, and its extremity being found lacerated (but not bleeding), was tied to the extent of three inches with silk and cut off. The rectum was again examined with the finger, and the bullet not being found there, I concluded that it was lodged in the extravasated blood in the mesocolon, and decided not to search for it further. Several pints of warm carbolic acid solution (about 1 to 100) were poured from a pitcher into the pelvis and sponged out, and the intestines, as they were replaced, freely washed with the same solution. The abdominal wound was sutured with silver wire, and silk sutures passing through all the layers with superficial catgut sutures; and a continuous catgut suture was applied to the peritoneum. Iodoform gauze covered the line of suture, and over this a compress of carbolized gauze, with a metallic coil (Leiter's) held in place by a binder. The incision into the bullet wound was stuffed lightly with iodoform gauze.

The duration of the operation was one hour and fifty minutes. The intestines were held outside the cavity just one hour, and thirty minutes were spent in applying the sutures. Ether was given for two hours and ten minutes. The pulse at the end of the first hour was 116, at the close of the operation 128, and of fair volume. The extremities were cold, but respiration was satisfactory. Four subcutaneous injections, each of whiskey ℥j, and tinct. digitalis ♏x, were given in the last hour.

Dr. Bull considered himself fortunate in having the advice of Professor J. D. Bryant, who agreed with him as the propriety of the operation, and the assistance of Drs. C. H. Wilkins, B. Farquhar Curtis, Garrison, Parke, Treniard, and Bryant, of the house staff. Drs. J. Robert Eustice and John P. Adams also rendered valuable help. The room was not specially prepared for the operation. It is used for out-patients during the day. But in other respects the utmost attention was given to antiseptic details. The sponges were taken from a five per cent. solution of carbolic acid, in which they had been lying for two months, and rinsed in warm two and a half per cent. solution. During the operation they were washed in a much weaker—about 1 to 100. All the silk employed I boiled myself in a five per cent. solution for half an hour previous to the operation. The towels employed were old ones, which had been washed in a two and a half per cent. solution, and were kept warm with a weaker one.

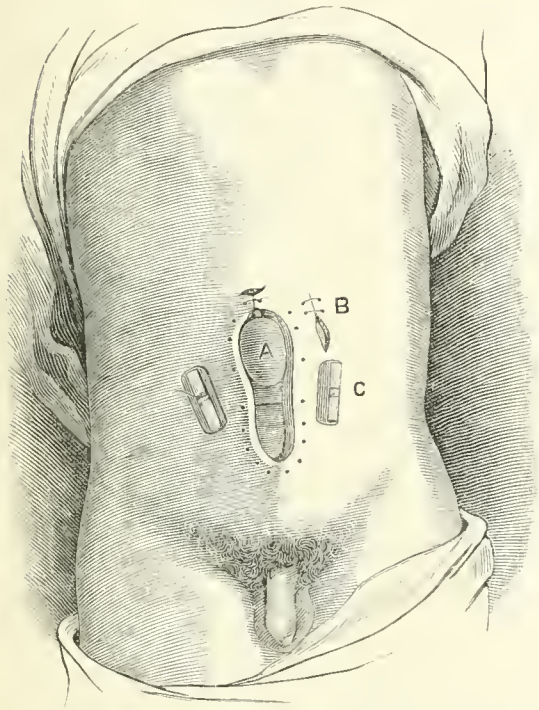
August 14. 10 A.M.; pulse 108, resp. 34, temp. 100°. Thirty-six hours after operation, reaction was prompt, and ice water was run through the coil twelve hours later, and is now continued. Magendie's solution ♏ xxxij, has been given subcutaneously in five injections; ice by the mouth, and by rectum five enemata of beef peptonoids ℥iijss, and whiskey ℥ss. During the last twelve hours he has been allowed champagne ℥ij, or milk and lime-water ℥ij, every two hours. He has dozed most of the time; complained of a little pain. There is slight tympanites. He is troubled with occasional cough with slight mucous expectoration. Urine drawn by catheter has amounted to ℥xx; it is high-colored and contains urates but no albumen; specific gravity 1.020. 10 P.M.: pulse 98, resp. 26, temp. 100°. Tongue is moist and there has been no nausea.

17th. Fifth day. 9 A.M.: pulse 80, resp. 24, temp. 101°. Up to this time the progress of the patient has been uneventful. There has been slight pain and tympanites; no nausea or vomiting. Liquid diet has been given and occasional doses of morphine hypodermatically. The cold water coil has been continued, though the temperature has not been over 100½°, or the pulse over 100. A copious normal but soft fecal evacuation took place after an enema. A purulent collection in the wound made itself evident by discharge about the sutures. The line of union which was firm,

was broken down and a thin layer of pus found at the bottom in the extra-peritoneal tissue. But in the upper half of the wound the peritoneum along the line of suture was sloughy, and on parting its edges a portion of intestine was visible, firmly adherent to the parietes. I mopped out with a two and a half per cent. carbolic acid; stuffed lightly with iodoform gauze. The pulse, respiration, and temperature were normal after this.

18th. Sixth day. While coughing in the night a piece of gut protruded from the upper third of the wound, but did not overlap the skin. Its surface was coated with grayish lymph, with granulations in places. The wound was five inches long and two inches wide. The

Fig. 5.



Appearance of the wound on the eighth day.
A. Protruding intestine.
B. Bullet wound.
C. Silver-wire suture secured with pieces of wood.

edges were held together with two "relaxation-sutures" of silver wire, and compression made on the intestine with a small pad of iodoform gauze and wool. (Fig. 5.) By means of this the gut was pushed back from day to day, while the edges being were drawn together and the lower part of the wound was filling with granulations. On the ninth day solid food was allowed. On the eighteenth day the intestine was on a level with the rest of the wound. The whole surface (3¾ inches long by ⅝ inch wide) was granulating finely. Skin grafts were put on several times. Balsam of Peru replaced the iodoform, and at the end of eight weeks cicatrization was complete. It is now only a week that he has been out of bed.

Dr. Bull thought his cases demonstrated the utility of the operation in preventing shock, which means loss of blood. He thought we had no satisfactory means of dealing with serious internal hemorrhage without resorting to laparotomy. He mentioned those cases published by Dr. Dennis as also showing the necessity of an early operation in this class of injuries.

The patient was then brought before the Society and his abdomen exposed, showing the cicatrices and line of incision, with entrance point of the bullet. The illustrations exhibited were made from the cadaver, which was placed in a position to represent that of the patient when he was shot.

He thought we should devise some satisfactory method of recording the unsuccessful cases as well as the successful ones; he had added one to the list of the former to-day, and he did not know of more than five or six such cases which had been published. He also believed it best, in gunshot wounds of the abdomen, to explore the wound to see if it be penetrating or not, and, if it be penetrating, to perform abdominal section and repair the injury if possible. He believed, however, that at present there are only three successful similar cases on record.

Dr. Markoe asked if he understood there were only three successful cases published.

Dr. Bull replied that that was all he had been able to verify.

Dr. Lange stated that there had been a case reported to him, lately, by a country practitioner in Germany, but he was not certain whether it had been published in the medical journals, as the case was sent to him in pamphlet form. He then asked what was the calibre of the bullet in Mahoney's case.

Dr. Bull replied that it was thirty-eight calibre, and in the fatal case thirty-two.

Dr. Stimson asked whether the wound of the mesentery was simply an abrasion.

Dr. Bull replied that the peritoneum was stripped off and lost.

Dr. Abbe thought that the absence of fecal contamination was of some importance in this case, and that it was a favorable point in preserving the patient from shock.

Dr. Markoe asked whether there was any fecal extravasation in the first case, and if he incised the wound to start with.

Dr. Bull replied no, to both questions.

Dr. Briddon asked whether he would advise exploration in all wounds of the abdominal cavity.

Dr. Bull thought it would be generally admitted that no such rules can be applied to every case; each one must be treated on its being examined by the surgeon; but he thought that if the operator waits until serious peritoneal symptoms set in, he stands less chance of success than if he had operated earlier. He therefore thought it desirable to make an early exploration, and if it be properly made it will not be injurious. If there be blood in the cavity an exploration should be made at once, and if the intestine is found to be injured laparotomy should be performed.

Dr. Wyeth asked Dr. Bull whether he attached much importance to emphysema of the intestines.

Dr. Bull replied that he had never seen it and never thought of it until Dr. Dennis read his paper; but since then he had seen it in two cases.

Dr. Wyeth remarked that he had had two cases of extra-peritoneal abscess in which there was emphyse-

matous crackling, and he had found that about nine inches above that point a fecal fistula had been established in the alimentary canal; this condition was very distinct.

Dr. Stimson asked if he had understood correctly that it was an extra-peritoneal abscess which communicated with the intestines.

Dr. Wyeth replied that it occurred in a case of Pott's disease.

Dr. Briddon thought it a very uncommon thing, but said that he had seen several cases of emphysematous crackling somewhat similar to the case referred to.

Dr. Wyeth remarked that he did not see how there could be fecal gas there unless the intestine was perforated.

Dr. Abbe then gave the history in brief, of a case of gunshot wound coming under his care in St. Luke's Hospital, which he thought might be of interest to the Society.

Case I. *Gunshot Wound of the Abdomen with Four Intestinal Perforations, and also One of the Bladder; Laparotomy and Suturing Six Hours Later; Death Nine Hours after Laparotomy.*—G. H., aged fifty-three years, of large physique and very fat, accidentally shot himself on the morning of July 8, 1886, while drawing some article from a low cupboard; he was bending over at the time and drew a small revolver toward him, which discharged its contents into his belly. He walked to another room and from there a distance of two blocks. He was taken to St. Luke's Hospital, reaching there at 11.30 A.M., and was seen by Dr. Abbe at 12 o'clock. There was then slight shock, dulled intellect with depression; pulse was 82; he had vomited once. He complained of rapidly increasing abdominal pain. Tympanites was not marked, but there was a full feeling about the belly. A small bullet wound was discovered in the median line three inches above the pubes; the probe passed at right angles with the surface. Eight ounces of clear bloodless urine were withdrawn by a soft catheter.

Laparotomy was performed at 2.30 P. M. of the same day, the incision extending from two inches below the umbilicus to just above the pubes; cutting through the inflamed peritoneum lined with lymph; this opened up an encysted collection, of about a pint of greenish, watery fluid, somewhat muddy with lymph flakes and feces. It was confined against the abdominal wall anteriorly by the matted intestines, which were already coated with a thick layer of lymph. The fluid came from a coil of small intestine centrally placed, showing two perforations, one near its attached border, the other opposite the mesenteric side; the latter discharged freely the same greenish watery fluid as was in the sac; each inspiration pumped it out in copious jets. The perforation close to the mesentery had its mucous coat everted and seemed plugged up; the fluid was perfectly confined by the lymph barrier on all sides.

On sponging this cavity the wounds of the gut were readily and thoroughly closed by Lembert's suture. No other coils were injured in this space. The intestines were now gently parted, and it was readily demonstrated that there was no general peritonitis, for the portion of each coil facing the inflamed sac was red and heavily coated with lymph, while the free sides were uninflamed and retained their lustre. Another piece of small intestine, wounded by a double perforation from side to side, was found somewhat below the large collection of fluid just described. It also was isolated by excellent plastic adhesions between neighboring coils, and contained a small amount of feculent inflammatory fluid. The involved parts were cleaned, and these two perforations sutured. No other wounds being seen, a rapid and careful survey of the intestine from duodenum to colon was made.

The bowel was passed from the fingers of one hand to those of the other, mostly within the abdominal cavity; warm sponges, dipped in sublimate solution, at once enveloped any coils that escaped. There was no further injury of the bowel. A final inspection of the pelvis showed a perforation of the peritoneum between the bladder and rectum, which in this subject was underlaid by fat an inch thick.

The wound was small and not inflamed. It was evident that no urine or feces had escaped to set up irritation. A probe was passed downward and backward an inch or so, but gave no clew to the direction of the bullet. It seemed probable that the missile had overshot the bladder, and, traversing the rectum, embedded itself in the sacrum. There had been no bleeding into the peritoneal cavity, and the loop of intestine drawn from the pelvis was free from all signs of inflammation. The fifth wound was sutured, and the peritoneal cavity sponged out with care, Dr. McBurney assisting. Sponges were thrust down into the pelvis and about the kidneys, but returned quite as dry as when introduced; showing that no fluid had leaked in during the operation. The pelvis was drained by a Thomas glass tube, emerging at the lower end of the wound, which was otherwise treated as usual. Before leaving the table a soft catheter was introduced into the bladder, and two or three ounces of clear urine drawn. The wounds suggested a small bullet, No. 22.

The patient did not come out from ether well, but remained in a somnolent condition, his breathing being characteristic of pulmonary œdema. He was restless, and had to be tied in bed. Pulse intermittent and not strong. A catheter being passed at 7 o'clock, no urine was found in bladder. He was freely stimulated with whiskey and digitalis, and heart's action greatly improved. A cold water coil was placed over abdomen. At 11 P. M. his pulse could scarcely be felt at the wrist, though it had been fairly good a few moments before. Prompt stimulation brought it up, yet soon afterward he was taken with a short convulsive attack, tossing about the bed, and throwing arms about. He suddenly ceased breathing. Artificial respiration was immediately begun, and an enema of brandy given, which was not retained. He died at 11.15 P. M.

To the above hospital record, Dr. Abbe added that from the time of operation, as he watched him from hour to hour, he seemed to be laboring under the strain of pulmonary œdema; breathing was oppressed, with more and more coarse râles and labored shallow inspiration. This, with semi-coma and suppression (which latter was complete after operation), and finally a fatal convulsion which he saw, led him to assign uræmia as the real cause of death.

Autopsy, July 9, 11.30 A.M.—The body is well nourished; rigor mortis well marked, no œdema. Veins of legs very varicose. There is an incision in the median

line of abdomen extending from a point one inch below the umbilicus to over the symphysis pubis; extending from the lower end of the incision is a large drainage tube. The wound is united by numerous sutures about one-quarter of an inch apart, and by four metal sutures one and a quarter inches apart. Peritoneum is intensely hyperæmic, and contains recently exuded lymph. The peritoneal cavity contains twelve ounces of purulent fluid.

Intestines. There are two wounds in the lower portion of the jejunum, opposite to each other, and carefully sutured; about seven feet above these two wounds are two other wounds opposite to each other and carefully sutured. The intestines are not elsewhere wounded. The mucous membrane is intensely congested. The mucous membrane of the large intestine is deeply pigmented. *Kidneys* are normal in size; they seem to contain fat in the cortices, and are moderately hyperæmic. *Stomach* is normal. *Spleen* is a trifle large, and soft in consistency. *Bladder:* There is a penetrating wound in the roof of the bladder, which is carefully sutured. An incision two inches in length was made in the roof of the organ, to the left of the wound, and showed the bladder to contain about an ounce of mud-colored urine. The organ was then carefully removed, and slit up through the anterior wall, through the prostatic urethra, and an area of half an inch in diameter of intense hyperæmia was seen at the outlet of the right ureter. *Liver* contains very considerable fat and a slight increase of fibrous tissue. *Heart:* Cavities are dilated; the valves are competent. The aortic and mitral valves are moderately thickened.

Microscopic Examination.—Heart: The muscular fibre of the heart is granular; the transverse striæ are very generally obliterated. There are free globules seen in the cell fibre. The interstitial fat is also increased. *Kidneys:* Hyperæmic; some atrophied glomeruli; very slight increase in the fibrous tissue and epithelium in convoluted tubes; granular, and in places fatty. *Liver:* There is considerable fat in the liver, and moderate increase in its fibrous tissue.

Regarding the note by Dr. Ferguson that twelve ounces of fluid were found in the cavity of the abdomen, Dr. Abbe noted two important points: First, it was like peritoneal secretion in severe acute peritonitis, but had a shade of greenish color about it that suggested to him the possibility that he had left some fluid as a cause for part of this, and that it had lurked in the loins, or between the folds of intestine not reached by sponging. Second, the fluid was found in the lumbar region of the abdomen at the autopsy, and his sponging certainly swept into this section before closing the abdomen.

The bullet was lodged in the bladder, and was not discovered by using soft catheters. The point of impact on the posterior bladder wall was bruised but not lacerated.

Dr. Abbe then exhibited some specimens of the parts, to elucidate more fully the nature of the wounds.

Dr. Joseph C. Hutchison remarked that some years ago, while attending a meeting in New Orleans, a case was reported in which the number of intestinal wounds was astonishing, but complete recovery occurred; he could not remember the exact number of the wounds, they were gunshot wounds; he presumed Dr. Bull had not heard of the case from his report.

Dr. Bull replied that he had not. From Dr. Abbe's statements, he inferred that the urine will generally be bloody if the bladder has been wounded, and yet, in one case quoted, although clear urine was drawn from the bladder, at the post-mortem an ounce of bloody urine was found in the bladder.

Dr. Abbe said that after the operation the patient suffered from suppression, and congestion of the kidneys would account for the two tablespoonfuls of muddy urine found post-mortem.

Dr. Bull asked whether it would not be advisable to leave a catheter in the bladder, in order to drain it thoroughly.

Dr. Abbe replied that Dr. McBurney and himself were perfectly satisfied that the wound did not penetrate the bladder, and thought there was no necessity.

Dr. Lange then exhibited specimens from a case of

FIBROMYOMATA OF THE UTERUS; SUPRAVAGINAL AMPUTATION; RECOVERY.

The specimen was removed, about four months ago, from a lady thirty-five years of age, who, for a number of years, without success, had tried the usual remedies. The tumor consisted of two main portions. The larger one, about the size of a man's head, had a pedunculated insertion on the upper part of the uterus. It had first to be cut away above, and an elastic ligature applied in order to allow of access to the smaller portion, which was about the size of the two fists and presented a broad insertion in front and to the right of the uterus, having developed below the peritoneum.

For his way of operating he had this time adopted the method of Martin and Schröder of treating the pedicle. The elastic ligature was definitely removed after sewing up the stump by catgut and silk sutures. The operation lasted more than three hours, and the patient finally made a good recovery after some disagreeable and critical disturbances.

Almost immediately after the operation she suffered from an acute nephritis, for which Dr. Lange could assign no cause. An enormous number of casts appeared in the urine, but in about a week it was normal; it had been examined before the operation repeatedly, and had never shown any abnormality. Iodoform had been left in very small quantities in the abdominal cavity. Dr. Lange thought it probable that the protracted ether-narcosis had some relation with this renal affection.

The stump of the uterus did not heal by first intention, though there was not any evidence of secondary hemorrhage. Suppuration and partial peritonitis set in, and an abscess opened itself through the os externus of the uterus. Several silk sutures were discharged or extracted, also some catgut sutures, which had not been absorbed, together with some sloughy tissue. The patient is now in good health and perfectly well. She also had an umbilical hernia before the laparotomy, which was at the same time cured by peritoneal suture. Dr. Lange called special attention to the condition of the right Fallopian tube. It was so much dilated that it almost looked like a filled gut, and when he cut across it after double ligation, and saw its greenish mucous contents, for a moment he thought that he had cut across the gut, the field of operation being so inaccessible in consequence of numerous adhesions.

Dr. Lange also reported two cases of

SUBSEROUS PAPILLARY CYSTOMATA OF THE OVARY, WITH OVARIOTOMY, FOLLOWED BY RECOVERY.

Both of these cases had this in common, that the tumors were of moderate size, situated on the right side, and rested with broad base between the layer of the broad ligament covered by peritoneum, without in any way showing the formation of a pedicle.

In both, the internal surface of the sac showed papillary formations; which in one case were very numerous and well developed, so that in some parts they gave to a large extent to the inner surface a papillary aspect. Both cases were operated on in such a way that the tumor was gradually shelled out of its peritoneal covering under due consideration of preventing hemorrhage by mass ligatures. In one case the peritoneum was thin and could be only incompletely preserved. In the other it was fastened to the lower part of the abdominal wound and the parietal peritoneum in such a way that the peritoneal cavity was entirely shut off. In the other this peritoneal partition was incomplete. In both cases the wound surface in the depth of the peritoneum was filled loosely with iodoform gauze, which was removed on the second or third day, to be replaced by less gauze, and finally by a drainage tube. In this way gradual diminution of the cavity took place, but in one of the cases where the closure had been imperfect, a fistula has remained, through which, so far, some coarse silk sutures have been discharged and more are expected to come out. The patients move about without much discomfort. The specimen of this latter case presents the rare variety of tubo-ovarian cyst, the Fallopian tube being in free communication with the inside of the cystic sac. Its canal was found dilated, the mucous membrane hypertrophied, and the contents a bloody mucus. The contents of the cyst itself at a puncture several months previous to the radical operation were clear, yellowish, thin, containing a great deal of cholesterine crystals.

The other case had the following interesting history: The patient, after having recovered from the operation sufficiently, went to the Catskill Mountains, suffering from unmistakable tuberculosis of the lungs. About four months after the operation I was called to see her, in consultation with Dr. Chubb, of Palenville. Three days previous the symptoms of obstruction of the intestine had suddenly developed, apparently after an indigestion. When I saw her the obstruction was complete, and stercoraceous vomiting had occurred repeatedly. Without much delay I brought the patient to New York, and after having tried, without success, the stomach pump and carbonic acid enemata, I performed laparotomy on the evening of September 17th. The obstruction was due to constriction of a loop of intestine about the size of a duck's egg, by a sharp peritoneal band, which spread between two points near the attachment of the mesentery to the small intestine. Under this band a coil of intestine had apparently slipped, and was so tightly strangulated that it looked almost gangrenous; around it there was a small gathering of brownish, bloody fluid, just as we find it in cases of strangulated hernia. There was no connection with the original field of operation. The peritoneal sac remaining after the ovariotomy, had shrunk to a small, hard lump; some adhesions of the omentum to it were removed. Numerous tubercles were found to be spread over the peritoneum, also one large, cheesy nodule within the omentum.

No disturbance followed the operation from the side of the abdominal cavity. The function of the gut returned in four or five days after the operation, and has, since then, remained normal.

During the second week, however, the lung trouble became more serious, and the formation of a cavity in the right upper lobe of the lung could be clearly made out. The present condition of the patient now, four weeks after the operation, is tolerably good, though there is no doubt that finally she will die from tuberculosis.

Dr. Bull asked whether he understood aright, that the iodoform tampon was used in the three cases; and to what extent the abdominal wound was left open.

Dr. Lange replied that the application of the iodoform gauze was different in each case; in one, the wound was left open at the upper portion; in another, the wound was left open below for about two inches; in still another, the peritoneum was sutured, and formed a sort of pouch of the wound, and the gauze simply laid in; removing it on the third day, and replacing new dressing as long as secretions remain, using the long forceps for this purpose. Contraction of the cavity gradually occurs until the wound is entirely healed. In one of these cases there yet remains a fistulous opening, which he thought would soon close.

Dr. Briddon asked whether it is not common in those cases in which high temperature ensues, to meet with nephritis.

Dr. Lange replied that he thought, perhaps, it was.

Dr. Briddon remarked that he had frequently found it so, but it all passed off in a few days.

Dr. Lange, in conclusion, stated that there was no septic condition in any of the cases.

CORRESPONDENCE.

NOTE ON PRIORITY AS TO REMOVAL OF THE UTERINE APPENDAGES FOR BLEEDING MYOMA.

To the Editor of The Medical News,

Sir: In your issue of the 24th of April last I have noted a communication from Mr. Lawson Tait, of Birmingham, England, upon the "Removal of the Uterine Appendages," in which he criticises a paper by his esteemed friend Dr. G. Taber Johnson, of Washington. With this controversy I have nothing to do, but would here state that removal of the appendages does not invariably induce the menopause. I reported a case, last year, where the menses have continued with the utmost regularity and in normal amount for the past eighteen months. In this case, a careful search was made for any supernumerary ovaries, and the tubes and ovaries were exhibited before the Medico-Chirurgical Society at the time.

There is, however, under the second head of his summary, a statement which needs attention, and should not have found its place there without a full and explicit explanation. I allude to his, Mr. Lawson Tait's, there claiming that the "Removal of the uterine appendages for uterine myoma . . . was first performed by me [Mr. Tait] on August 1, 1872, with a successful result. I

am, therefore, entitled to have the operation described by my name."

Now, there are several facts which lead to the conclusion that the priority for this operation heretofore accorded to me seems to be just, which have been overlooked by Mr. Lawson Tait.

1st. In the second volume of the *Gynecological Transactions* for 1876, page 297, I there stated that "I would add to Dr. Battey's four concluding propositions a *fifth*, to the effect that the operation is indicated when severe and exhausting hemorrhages occurred at the menstrual period, which have resisted all forms of treatment. I have published two cases in which I removed the ovaries under these conditions for the purpose of arresting the excessive hemorrhages."

This claim of priority is conceded to me by Drs. Emmet, Goodell, Englemann, and all other writers upon the subject.

In 1884 the meeting of the Canada Medical Association was held in Montreal. Mr. Tait was at the meetings, and *present* when the ablation of the uterine appendages was discussed, and *my claim to priority was asserted without question upon his part.* Now, however, after fourteen years' silence, this gentleman makes known an unsupported and unauthenticated case, claims priority for the operation, and that his name should be connected with it.

These facts are offered to the profession for their judgment, and one can rest assured that their verdict will be in accordance with truth and justice.

E. H. Trenholme, M.D.

1402 St. Catharine Street, Montreal,
October 19, 1886.

NEWS ITEMS.

Mrs. Woerishoffer's Gift to the New York Academy of Medicine.—The following correspondence in relation to the munificent gift of Mrs. Woerishoffer, will be read with interest:

New York, October 13, 1886.

Dr. A. Jacobi,

Dear Sir: Please find enclosed a check for the "Academy of Medicine," which I send you in memory of my husband, the late C. F. Woerishoffer. In selecting the Academy of Medicine as one of the institutions to which I intend to distribute a certain sum in accordance with the wishes of my husband, I am led by the high appreciation Mr. Woerishoffer always entertained for the medical profession.

Yours very sincerely,
Anna Woerishoffer.

New York, October 15, 1886.

Dr. Everett Herrick,
Chairman Board of Trustees New York Academy of Medicine.

Sir: In presenting a munificent donation to the New York Academy of Medicine, Mrs. Anna Woerishoffer was guided, firstly, by the great respect her late husband, Mr. Charles F. Woerishoffer, always felt and expressed for medical science and the medical profession, and secondly, by her conviction that it is better to aid and sustain such institutions of either science or charity as have already proved their faculty and right to exist by duration, results, and accumulated property, than to create new institutions.

After mature deliberation she came to the conclusion that the New York Academy of Medicine has, by its publications in the journals of the country, and in numerous volumes of transactions and bulletins, and by its regular, stated, and section meetings, largely contributed to the progress of medical science, and deserves eminently the name of a scientific body; that after having existed forty years, collected an ever increasing library, and accumulated considerable property, the New York Academy of Medicine holds out the promise of perpetuity; that, by excluding politics and ethical strifes from its constitution and gatherings, it deserves the name of a purely and exclusively scientific body, and thereby the confidence of the public; and that it must necessarily become and be the centre of the scientific interests and labors of the medical profession of New York.

Mrs. Woerishoffer was also struck with the fact that the present building of the New York Academy is too small for its present and future purposes; that not only its sections require more accommodations, but that every medical and scientific society of the city ought to find ample room within its walls, and look upon the Academy as its proper centre; and finally, that the increasing library is in urgent need of a fire-proof building.

From these points of view, Mrs. Woerishoffer desires to contribute to the means required for enabling the New York Academy of Medicine to accomplish its great ends, and reach its high aims, which she takes to be both truly scientific and truly humane.

I have the honor, Mr. Chairman, of enclosing Mrs. Woerishoffer's letter and her check for twenty-five thousand dollars.

Very respectfully yours,
A. Jacobi, M.D.,
President.

New York, October 16, 1886.

Mrs. Anna Woerishoffer,

Dear Madame: The Trustees of the New York Academy of Medicine gratefully acknowledge the receipt of your check, through Dr. Jacobi, for twenty-five thousand dollars, sent in memory of your husband, the late Mr. C. F. Woerishoffer, and in accordance with his wishes.

In accepting the gift, the Trustees desire to thank you as the almoner of your husband's estate, and hope so to use it that no one bearing his name shall have cause to regret "the high appreciation which Mr. Woerishoffer always entertained for the medical profession."

Yours very truly,
Everett Herrick, M.D.,
President.

George A. Peters, M.D.,
Secretary.

New York, October 22, 1886.

Mrs. Anna Woerishoffer,

Dear Madame: At a meeting of the Academy held Thursday evening, October 21, 1886, the following resolutions, moved by Fordyce Barker, M.D., and seconded by C. R. Agnew, M.D., were unanimously adopted:

Resolved, That the New York Academy of Medicine accept with the warmest thanks and gratitude, the noble gift of twenty-five thousand dollars from Mrs. Anna Woerishoffer, as an expression of the appreciation by her late husband, Mr. Charles F. Woerishoffer, and her-

self, of the importance of the medical profession to the health and welfare of the public, as well as to individuals, and the necessity for the development of its highest culture.

Resolved, That the names of Mr. and Mrs. Charles F. Woerishoffer be inscribed in the Academy for permanent record as Benefactors.

Resolved, That a copy of these resolutions, duly engrossed, and signed by the President, Recording Secretary, and Treasurer, be transmitted to Mrs. Woerishoffer.

A. Jacobi, M.D.,
President.
A. M. Jacobus, M.D.,
Recording Secretary.
F. A. Castle, M.D.,
Treasurer.

Low Water in Wells and Typhoid Fever.—Dr. Henry B. Baker, of Lansing, Michigan, supposes a close relation to exist between typhoid fever and low water in wells. The diagrams which he presents in his paper of the prevalence of sickness from typhoid fever in Michigan, and the depth of the earth above the ground-water in the wells during six successive years, seem to show that, beginning with June in each year, the sickness-curve follows more or less closely the well water-curve. The author believes that one of the causes, probably the principal cause, of sickness, is the contamination of the water by the drainage from stableyards, privy-vaults, and cesspools, which reaches the wells more directly when the water in them is low, and forms in them stronger solutions than when it is high. On the other hand, the curves in several years, from January to June, show no such correspondence. The difference in results is explained by the frozen condition of the ground in the winters when typhoid did not prevail; a condition which, while it tended to reduce the quantity of water in the wells, at the same time prevented percolation from the surface sources of contamination. The fever was more prevalent in the open winters when percolation was not thus impeded. Corroboration is given to these views by a remark made by Dr. Foster Pratt, of Kalamazoo, at the meeting of the American Medical Association in June, 1874, that typhoid fever was unusually prevalent in Kalamazoo in a certain year in the autumn, at about the time the water in the wells was very low, and some wells became dry.

Changes in Tooth-form.—Professor Windle has announced to the British Association, as conclusions from his researches on the subject, that man's original dentition included six incisors in either jaw; that two from each jaw have gradually disappeared; that this loss is due to the contraction of the anterior part of the palate; that this process of contraction will probably go on and result in the loss of two further incisors; and that the conical shape of many of the supernumerary teeth indicates a reversion to the primitive type of tooth.

A New Manifestation of Argyria.—M. Lewin has reported to the Berlin Medical Society his observation of an affection that seems to be peculiar to workers in silver. It appears in the form of round or oval bluish spots on the skin, which in extreme cases may be as large as a nickel five-cent piece, generally on the back of the left hand. Workmen in metals who do not use silver are free from it. The manner in which the spots are produced is not clear, for experiments with the direct application of silver in various forms have failed to generate them. The silver probably falls upon some scratch—for the spots are usually developed where there has been a lesion—in a solution, and afterward undergoes some chemical change by the action of the bodily fluids which induces this peculiar color.

Absence of Alkaloids in Hot-house Plants.—According to Prof. A. Vogel, plants do not always contain their characteristic alkaloids when grown under other than natural conditions. Hemlock does not yield coniine in Scotland, and cinchona plants are nearly free from quinine when grown in hot-houses. Tannin is found in the greatest quantity in trees which have had a full supply of direct sunlight.

NOTES AND QUERIES.

COCAINE ADDICTION.

To the Editor of The Medical News.

If any reader of your journal has met with a case of cocaine addiction, and will send me the fullest details at his command, I'll thank him for the courtesy, reimburse him for any expense incurred, and give him full credit in a forthcoming paper.

J. B. Mattison, M.D.
314 State Street, Brooklyn

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 30, 1886.

Diehl, Oliver, *Passed Assistant Surgeon U. S. N.*—Granted three months leave of absence from October 26, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 26 TO NOVEMBER 1, 1886.

Middleton, J. V. D., *Major and Surgeon.*—Ordered from the Department of Missouri to David's Island, N. Y. H.—*S. O. 252, A. G. O.*, October 29, 1886.

Woodhull, A. A., *Major and Surgeon.*—Ordered from David's Island, N. Y. H. to the Department, of Missouri.—*S. O. 252, A. G. O.*, October 29, 1886.

Williams, J. W., *Major and Surgeon.*—Ordered fom the Department of Colorado to the Department of the East—*S. O. 252, A. G. O.*, October 29, 1886.

Carson, J. K., *Captain and Assistant Surgeon.*—Ordered from Jefferson Barracks, Missouri, to the Department of Colorado, upon expiration of present leave of absence.—*S. O. 252, A. G. O.*, October 29, 1886.

Turrill, H. S., *Captain and Assistant Surgeon.*—Ordered from the Department of the Platte to the Department of Colorado.—*S. O. 252, A. G. O.*, October 29, 1886.

Munday, Benj., *First Lieutenant and Assistant Surgeon.*—Ordered from the Department of Colorado to Jefferson Barracks, Missouri—*S. O. 252, A. G. O.*, October 29, 1886.

Lauderdale, John V., *Captain and Assistant Surgeon.*—Leave of absence extended one month—*S. O. 249, A. G. O.*, October 29, 1886.

Owen, Wm. O., Jr., *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Schuyler, N. Y. H., and ordered for duty as post-surgeon at Plattsburg Barracks, N. Y.—*S. O. 170, Division of the Atlantic*, October 29, 1886.

Edie, Guy L., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort McIntosh, Texas, to Post of San Antonio, Texas.—*S. O. 152, Department of Texas*, October 27, 1886.

Harris, H. S. T., *First Lieutenant and Assistant Surgeon.*—Ordered from Post of San Antonio, Texas, to Fort Clark, Texas.—*S. O. 152, Department of Texas*, October 27, 1886.

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ORIGINAL ARTICLES.

SOME POINTS OF SPECIAL INTEREST IN THE TREATMENT OF COMPOUND FRACTURES,

INCLUDING A REPORT OF FIVE HUNDRED AND SIXTEEN CASES.[1]

BY FREDERIC S. DENNIS, M.D.,

PROFESSOR OF PRINCIPLES AND PRACTICE OF SURGERY IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE, ATTENDING SURGEON TO THE ST. VINCENT, NINETY-NINTH STREET, AND BELLEVUE HOSPITALS, NEW YORK CITY.

AT a meeting of the American Medical Association which convened in Washington, in June, 1884, I presented a paper on the treatment of compound fractures, in which were reported one hundred and forty-four cases treated consecutively, without a death from blood-poisoning. In the present contribution I shall present five hundred and sixteen cases of compound fractures, all of which, excluding those which were at that time reported, have occurred within the past two years in my hospital practice at St. Vincent, Ninety-ninth Street, and Bellevue hospitals. As many of these cases are of special interest from several points of view, I have undertaken the task of reporting them for the purpose of eliciting a discussion from members of this Association upon some important questions which naturally arise in connection with the general treatment of compound fractures. There are some recommendations discussed in my last paper which a larger experience has taught me the wisdom of modifying to accord with more recent views in surgical pathology.

The procrustean rules of absolute cleanliness, of immediate fixation, and of provision for free drainage in every compound fracture, need no modification. The technique involved in carrying out the details of these rules may vary, but the general principles remain the same. A more extended experience in the treatment of compound fractures has taught me that, while absolute cleanliness is essential, and immediate fixation is necessary, that no splint should be left on a limb longer than eight days without either its entire removal, or at least an examination of the seat of fracture. Formerly I inclined rather to the view that a splint had better remain undisturbed throughout the entire period of repair; but within the past year I have seen several bad results arising from a too rigid adherence to this rule. In one case, I saw a compound fracture which was skilfully dressed with plaster of Paris examined at the expiration of six weeks, during which time the patient's condition was in every way satisfactory. Upon removal of the splint, the bone was protruding, the displacement was great, and considerable union had taken place. A complete osteotomy corrected the deformity, and six additional weeks were occupied in obtaining a result which was perfectly satisfactory. If this fracture had been examined at the end of eight days, the protrusion of the bone would have been detected at once, and the faulty position rectified. While this result is exceptional, such unfortunate complications can always be obviated by a simple inspection of the fracture after eight days, and then again in ten days, after which time no serious deviation can occur. The time involved in the careful examination of every compound fracture is not to be considered in comparison with the risk which an omission to do so may involve.

Every compound fracture needs careful study and attention. I am more and more convinced of the importance of the first dressing. The patient who suffers from a severe compound fracture of any bone should be placed upon the operating table and the fracture examined and dressed with the same care with which a resected joint or a laparotomy should be dressed. The parts should be made aseptic at once, the deformity immediately overcome, the bones brought in exact apposition while the patient is under ether and the muscles are relaxed. Loose pieces of bone not adherent to periosteum are removed and the fragments are now adjusted, the antiseptic dressings applied with great care, a plaster-of-Paris bandage neatly placed upon the limb, and the fracture is certain to do well.

The manner in which the first dressing is applied has much to do with the prognosis. Esmarch has said that the fate of a patient often hangs upon the surgeon who first touches the wounded man. Wherever the circumstances are within the control of the surgeon, I would go even still further and recommend that ambulance surgeons should exercise great care in the transfer of a compound fracture to the hospital. I have made it a rule of practice at the Ninety-ninth Street Hospital that antiseptic irrigation should be employed at the station-house or upon the sidewalk before the patient is moved, and that at once after the irrigation a clean antiseptic dressing be applied before the patient is lifted into the ambulance. I feel sure that the success of treatment in the large number of compound fractures which have been admitted to this hospital is in great part due to the strict adherence of this important rule, which I have found willingly and cheerfully obeyed by the ambulance surgeons, who have begun to realize how important is their position in the matter of antiseptics.

There are some new questions which have arisen that are of interest when discussed in the light of the recent revelations in modern surgical pathology. Among these many subjects for special study and observation I have selected a few which seem to me

[1] Read before the New York County Medical Association, in the Carnegie Laboratory, October 18, 1886.

as possessing unusual interest in connection with the report of these compound fractures.

1st. Meningeal hemorrhage.
2d. Fat embolism.
3d. Insanity following fracture of skull.
4th. Malignant disease.
5th. Tenotomy.
6th. Healing by Schede's method.
7th. Amputation.

Meningeal Hemorrhage.—This variety of hemorrhage occurring in compound fractures of the skull has been a subject about which there existed much diversity of opinion among surgeons. It has been the routine treatment for many years to ligate the common or the external carotid artery in case of severe hemorrhage from the middle meningeal artery or one of its large branches. I have ligated the carotid in a case of severe meningeal hemorrhage and the bleeding was at once arrested. Among the cases in my list of compound fractures of the skull is one which is of great practical interest as bearing upon a new method of arresting hemorrhage without resorting to a ligation of the carotid.

In the case referred to, a man received a severe compound fracture of the skull upon the right side. The accident was caused by a stone weighing 700 pounds falling upon his skull. I trephined the seat of fracture and removed over forty pieces of bone, loose in the wound, of which two fragments were larger than a twenty-five cent piece.. I found a large epidural blood-clot nearly the size of the palm of my hand between the dura and the internal surface of the skull. I removed the blood-clot, which I have preserved as far as possible in this glass jar, and upon the removal of the blood-clots I found the middle meningeal artery bleeding to an alarming extent. I controlled the hemorrhage as best I could temporarily with sponges and tampon until I was enabled to remove more bone in order to secure the open vessel. Having removed bone to the extent of six inches I attempted with artery forceps to seize the bleeding point. Every attempt failed and I was unable to grasp the artery on account of the dura mater receding when the artery forceps caught hold of the depressed dura mater through the opening in the skull. Whenever the ends of the forceps were applied to the dura mater this membrane was pushed down and the forceps could not be made to catch hold of the bleeding point.

The idea suggested itself to me in this crisis to introduce the point of a tenaculum through the membrane and out again in such a way as to include the bleeding vessel in the cuvre of the tenaculum. With this instrument I now raised up the dura mater from the brain on a level with the skull, and then applied the artery forceps. The dura mater, which before receded from the grasp of the forceps, and formed a tense, concave surface, was now held firmly, and that part of the membrane held between the curve of the tenaculum was lax, and permitted the forceps to seize tissue and artery. The vessel was tied with catgut, and the hemorrhage was arrested. The paralysis upon the left side of the body disappeared. The wound healed in an aseptic manner, and the patient recovered so far as the operation was concerned. He died some four or five weeks after the injury, and I was enabled to secure an autopsy, which was made by Dr. Grauer. There was nothing in the brain, or in its coverings, which could have caused death; the patient had died from exhaustion and inanition, with no local brain lesion. The use of the tenaculum in the manner described, to seize a torn middle meningeal artery through an opening made in the skull, seems to me a better operation than ligation of the external or common carotid artery in the continuity.

Besides the question of the arrest of hemorrhage by ligation of the meningeal artery by means of a tenaculum introduced through an opening in the skull, another question has arisen in connection with these cases of meningeal hemorrhage. The possibility of a surface clot by contre-coup has been denied by many surgeons. I have here two specimens which I believe will settle this long-disputed question.

In the first of these cases, a patient was found by a policeman on the street, at eight o'clock in the evening, in a condition of what was supposed intoxication. He walked to the station-house, and was locked up for the night, and at ten o'clock the following morning he was brought before the police justice in court, and was sentenced to ten days for intoxication. At eleven o'clock he was returned to the station-house, awaiting the time to be sent to the Island. While in the cell, a few minutes after his arrival, he became unconscious, an ambulance was summoned, and he was taken by Dr. Rau to the Ninety-ninth Street Hospital. I saw the patient that day, and from the history of the injury and the paralysis, I diagnosticated meningeal hemorrhage. The patient was anæsthetized and the uninjured scalp was incised, exposing to view a linear fracture. The trephine was applied, and a large epidural clot was discovered. The dura mater was torn, and the brain substance lacerated. The wound was dressed antiseptically. In fourteen hours the patient died. The autopsy revealed the presence of a second epidural clot which was almost opposite, and was the result of contre-coup. The scalp over the skull corresponding to this clot was normal as upon the opposite side.

The second case was also seen by Dr. Rau, the house surgeon of Ninety-ninth Street Hospital. The patient was brought to the hospital in an unconscious condition with general paralysis. The case was supposed to be a fracture at the base of the skull. The patient died the next day, and the autopsy showed a linear fracture of the parietal bone upon one side, and extending to the middle fossa, under which fracture was a large epidural clot, and upon removing the calvarium another surface clot was found at a point directly opposite to the fracture. This fracture did not extend upon the other side of the skull, and the clot here was also the result of an injury by contre-coup.

These two specimens settle the important question whether a meningeal hemorrhage may be produced by contre-coup. The diagnostic points of epidural meningeal hemorrhage by contre-coup, or by trau-

matism without fracture, suggest operative interference in these cases.

The presence of symptoms of cerebral irritation, followed by unilateral paralysis, with a slow tense pulse, the Cheyne-Stokes respiration, accompanied by a sudden rise of the temperature due to disturbance of the heat centre, form a group of symptoms, which, if they were preceded by a short interval after the injury in which no serious manifestations of brain lesion were present, make it extremely probable that an intracranial meningeal hemorrhage had occurred.

This group of symptoms appearing at the time, and in the order mentioned, with or without any fracture, would indicate the application of the trephine over the seat of pressure, the removal of the clot, and the ligation of the middle meningeal artery through the opening made in the skull by means of a tenaculum applied in the manner already described. To some this may seem too bold; but when the fact is considered that it has been demonstrated that formerly nine-tenths of these cases perished under the expectant plan of treatment, and when further it is considered how safe the operation of trephining is in the hands of antiseptic surgeons, it would seem that a surgeon might be derelict in his duty if he did not resect a portion of the skull and remove the clot and arrest the bleeding. I have applied this principle in several cases with success where I trephined in head injuries, suspecting, but having no knowledge of a fracture of the internal table, and have removed many pieces from the inner surface of the skull.

Fat Embolism.—This interesting complication in the treatment of fractures in general was first described fully by Wagner and Zenker. Fat embolism means the entrance of fluid fat probably derived from the medulla of the bone into the veins in the immediate vicinity of the fracture, and through these channels into the capillaries of the brain, spinal cord, lungs, kidneys, and other essential organs.

The presence of fluid fat in the blood had been described as early as 1836 by Dr. R. W. Smith; but the clinical importance of this symptom was not investigated until recently by Bergman, Czerny, and Scriba. Déjérine has experimentally produced in the lower animals fat embolism by inserting laminaria-tents into the medullary cavity of the long bones. The occurrence of fat embolism in fractures is undoubtedly much more frequent than has been formerly supposed, and without doubt, also, the dangers of this condition have been over-estimated. Fat embolism has been fatal in laceration of the liver where the patient had a fatty liver, as in alcoholic or in tuberculous patients; but these cases are altogether different from the fat embolism which is found in connection with a fracture. Flournoy pointed out three essential conditions necessary to the development of this complication. He demonstrated that there must exist large openings in the veins, free fluid fat, and a *vis a tergo*, which is found in copious extravasations of blood.

The symptoms of fat embolism appear within the first three days as a rule, and consist of those of secondary shock. They occur before the time at which venous thrombosis or pulmonary embolism would be expected to arise. Great dyspnœa associated with the Cheyne-Stokes respiration, and great irregularity of the heart with a sudden rise of temperature, together with twitchings of the muscles, as well as paralysis of certain muscles, have been observed in these cases. There have been no metastatic abscesses found in the cases of fat embolism where a report of the autopsy has been published. In several cases I have been able to find an abundance of fat globules in the urine following a train of symptoms such as has been mentioned.

I have seen these symptoms appear after osteotomy where the condition of the wound itself was perfect. Fat embolism is said to be found more frequently in fractures in the aged, because the medulla contains much fat, and not often in children, owing to absence of fat in the medulla.

The treatment which has been recommended in this condition, with a view of dissolving the fat, is the administration of ether, and also a free use of the diffusible stimulants. In cases of cyanosis with great dyspnœa, artificial respiration has been suggested. I have never seen a case of fat embolism where it became necessary to resort to these severe measures, but the attacks have been of short duration, and have been followed by the presence of fat in the urine. In pathological specimens, osmic acid stains the tissues so that the fat appears in black globules of irregular shape, but in the urine the fat globules are detected by the microscope.

I have at present under treatment, in Bellevue Hospital, a case of simple fracture of the fibula, in which the complication of fat embolism has arisen. On the 5th of October the patient sustained a fracture of the fibula, and upon admittance to the ward was in good condition. Two days later she suddenly developed a temperature of 104½° F., associated with vomiting and diarrhœa. Her pulse was rapid and feeble. The urine, which upon admittance was normal, now became bloody, contained casts, and was loaded with fat globules. The examination of the urine was made by Dr. Houghton, who exercised great care in the investigation. The patient grew better under treatment with Hoffmann's anodyne and ammonium carbonate, and her condition now is in every way satisfactory.

This group of symptoms must not be mistaken for shock following a fracture, nor for pulmonary embolism. The former condition may be said to be present three hours after the fracture, fat embolism three days after the fracture, and pulmonary embolism three weeks after the fracture. For convenience, I have arranged these complications in the order in which they are most likely to occur, and by associating these conditions which simulate each other by the time in which they appear, no mistake in diagnosis is likely to arise.

Insanity following Fracture.—There have been a good many cases of insanity following traumatism of the head, and this is a generally accepted view among specialists in nervous diseases. To trace the etiology of insanity to a fracture of the skull is more difficult. I have now a patient in an asylum as a re-

sult of a fracture of the skull, and I understand that he is hopelessly insane. I have under observation, also, a case of imbecility and idiocy which resulted from a pistol-shot wound of the skull. In another case of severe and persistent headache extending over a period of six years, I trephined over the site of a previous fracture, and found the dura thickened and the seat of a pachymeningitis. The removal of the depressed bone relieved the intracranial pressure, and the patient—whom I now see from time to time—has never had any return of the agonizing pain in her head, and her mental condition seems much improved. This patient is now at work, and expresses herself as perfectly well.

In three cases of traumatic epilepsy attended with more or less mental disturbance I have used the trephine with most excellent results. I am aware that, as a rule, trephining is not uniformly successful in epilepsy, and my own experience has led me to expect little from the operation in those cases where there is not a well-marked depression produced by a fracture.

There is a case reported recently by Dr. McDonald, in which insanity followed a compound fracture of the skull, and where the patient recovered completely after an operation. The depression in this case was situated over the first frontal gyrus marked 12 by Ferrier. There is also a case reported by Dr. McEwen, of Glasgow, where insanity was produced by a fracture of the skull with depression, and where the patient recovered after trephining. Schroeter mentions a case where a patient became insane on account of a fracture of the skull. Dr. Spitzka was kind enough to show me in his collection several interesting specimens bearing upon this point. One specimen was part of a brain belonging to a patient who was struck by a fragment of a shell at Chancellorville. He became insane and died after some time. The injury was in the median line, the dura was thickened and adherent, and there was milky opacity. The lepto-meninges were thickened, the sulci beneath gaped, and the perivascular spaces were enlarged. Dr. Spitzka also gave me the notes of another patient who became insane after a depressed fracture of the skull produced by the explosion of a shell at the battle of Bull Run. At the autopsy there was found periencephalitis corresponding to the indentation upon the inner surface of the skull. The dura was universally adherent on both hemispheres, and there were hæmatomatous efflorescences in both dural sacs. In another case where a patient had been kicked by a horse on the left frontal region over the superciliary ridge, the depression internally was an exaggeration of the mamillary eminences, and they stood forth like spiculæ of bone. The hemispheres were unsymmetrical, and a well-marked depression was seen upon the frontal lobe beneath the seat of fracture.

Many other cases might be found where the cause of insanity is due to an old and unrelieved depressed fracture. In all these cases depression existed, hence the important point of elevating at the time of accident, even though no symptoms exist. A study of these cases shows clearly that insanity may result if a depression is left in the skull in a recent injury, and when it is demonstrated how free from danger is trephining in careful hands, and what serious conditions may follow neglect to perform this operation, it seems clearly evident that in every case of marked depressed fracture, with or without symptoms, the surgeon should elevate the bone for fear that some form of mental disturbance may follow.

The kind of insanity which follows in these traumatic cases is that form which is attended with great irritability and mental excitement, and which is also accompanied with fits of violent temper and passion. These phenomena are suggestive in depressed fracture, and call for surgical interference in a class of cases where, until recently, no relief could be extended to the sufferers.

Malignant Disease.—The question of development of malignant tumors at the seat of fracture is an exceedingly important one in surgical pathology. Gross, of Philadelphia, has pointed out the important fact that almost half of the cases of malignant bone disease can be traced to traumatism. His valuable contribution upon this point is worthy of careful study. I have been able to verify in my own experience the conclusions which Gross draws from a study of a large number of his own cases.

During the last month I operated upon a child with an immense sarcoma developed upon the occiput. The child sustained a heavy fall upon the back of the head six months previous and a large hæmatoma was at once developed. The hæmatoma was not incised and in all probability a linear fracture existed beneath it. For some weeks after the injury there was nothing special except the presence of the hæmatoma; but the tumor then began to grow very rapidly and in less than six months from the receipt of the injury the sarcoma was much larger than the child's head. The patient died some weeks after an incomplete operation for its removal. No autopsy was permitted; but at the time of the operation I found the skull perforated and the brain exposed. The tumor was examined by Dr. McNamara, who pronounced it to be a sarcoma. The history of the case and the nature of the fall, make it extremely probable that a linear fracture existed and from this point the malignant disease took its origin.

I have here a beautiful specimen illustrating the clinical fact that a fracture may be the starting-point of sarcoma. The patient from whom this thigh was removed was treated by Dr. Robb for a fracture of the femur just above the condyles. Some six months after the accident a rapidly growing sarcoma developed at the seat of fracture. Dr. Robb sent the patient to me for an amputation at the hip-joint. The patient would not, for a long time, consent to the operation, and when he finally acceded the tumor had made great progress and had seriously affected his general health. He did not survive the operation, but died within twenty-four hours.

I have had a large number of cases of malignant disease which could be traced to traumatism; but to trace the traumatism directly to a fracture of the bone is not a common occurrence.

The variety of tumor which develops is sarcoma, as carcinoma is, as a rule, a metastatic disease in bone. True sarcomata may be central—that is, growing from the cancellous tissue of the medullary canal of the bone; or else periosteal, in which case the starting-point is from the covering of the bone. These tumors grow very rapidly, and soon infect the patient.

The prognosis, while grave, is not necessarily fatal provided the tumor is recognized early and the operation is performed far from the seat of disease. This subject of the influence of fracture upon the development of sarcoma is one to which no extensive investigation has as yet been made and it is one which offers a rich field for original research.

Epithelioma also may develop indirectly as a result of a compound fracture; but this malignant growth has its origin from the soft tissues in connection with a sinus leading down to necrosed bone. If a sinus is not healed it becomes lined with epithelium and a discharge of ichorous pus through it from time to time sets up an irritation in the epithelial-lined sinus and a proliferation of epithelial cells takes place and epithelioma may in this way secondarily develop. While the epithelioma is not directly in connection with the seat of fracture as is the case in sarcoma, nevertheless the disease may have its origin in conditions arising from sequestration in a compound fracture. The closure of such sinuses in connection with necrosis following a fracture should always be aimed at by the surgeon. Early amputation before glandular enlargement at a point distant from the disease may offer a favorable prognosis.

Tenotomy.—Two years ago I called attention to this procedure in the treatment of compound fractures, and in a number of cases since then I have been impressed with the value of this operation in all oblique compound fractures where the fragments overlap. Division of the tendo Achillis relieves at once any contraction of the muscles, permits the fragments to be placed accurately in coaptation, and the physiological rest thus secured affords great comfort to the patient, and a valuable means of fixation to the fracture during the first ten days. The tenotomy in no way increases danger to the patient, and is easily performed. The foot should be placed in its normal position, as recommended in Dr. Reginald Sayre's most excellent monograph upon fixation of the foot, immediately after tenotomy for club-foot.

The operation is not limited to the tendo Achillis, but may be employed with advantage in exceptional cases upon the hamstrings, in fractures of the tibia or fibula close to the knee-joint. It may also be found a most valuable adjuvant after osteotomy in the anterior curvature. The same may be said in reference to the tendons of the arm and forearm, and even in fractures of the clavicle, if the clavicular origin of the sterno-cleido-mastoid muscle tends to pull the inner fragment upward and away from the outer fragment. I believe there is much to be gained by the adoption of this simple device in the treatment of many cases of compound fracture of the extremities where there is difficulty in reduction, and from the excellent results obtained in those fractures where this procedure was resorted to I can commend it as a most valuable measure.

In vertical fracture tenotomy is of no avail; but in several cases of compound fracture of the tibia, where the solution was parallel with the long axis of the bone, with considerable separation of the halves, I have found great difficulty in bringing the two long vertical fragments in contact. The Signourini horseshoe tourniquet proved a most valuable instrument in closing the long fissure. The instrument overcomes the vertical separation just as tenotomy overcomes the oblique displacement. The pad can be applied to one side of the bone, and pressure can be made by applying the other pad over a thick plaster bandage. The screw can be tightened gradually, and in a few days the bone can be approximated, and the instrument discarded. This is a safe and more satisfactory instrument than the apparatus devised by Malgaigne.

Healing by Schede's Method.—In a number of severe cases of compound fractures of the leg and skull I have observed some beautiful illustrations of this newly described method of repair. In a recent paper read before the German Congress of Surgeons this subject was ably discussed by Schede, and the views which he enunciated are somewhat at variance with the generally accepted opinions upon this pathological question. It has usually been taught that blood-clots in wounds are obstacles to repair by primary intention, and that these clots act as foreign bodies. In one case of severe compound fracture of the leg there was great hemorrhage between the fragments, and a large space left between them, which was filled with fluid blood and blood-clots. I divided the tendo Achillis to counteract the contraction of the muscle, and also in order to bring the fragments in better apposition. The leg was then dressed with the most rigid aseptic precautions, and the blood-clots became organized and furnished a most valuable medium of union. The fracture healed by primary intention, and the patient made a most excellent recovery.

Fluid blood and blood-clots, if perfectly aseptic, are valuable adjuvants in the repair of compound fractures. They are, however, most potent sources of evil if any possible infection reaches the clot through any carelessness of the surgeon. It is a most valuable contribution to the treatment of compound fractures, if the blood which escapes between the ends of the fragments can be in the future utilized as a means of hastening and perfecting union by primary intention. The reason why so important a principle in surgical pathology has been so long unknown is explained by the fact that blood-clots, until rigid asepsis was established, were recognized sources of septic inflammation. If all the surrounding parts in every compound fracture are made aseptic, blood-clots and fluid blood can be utilized for the purpose of healing. Anything short of surgical cleanliness will convert these clots and the blood into dangerous agents of infection.

Amputation.—Amputation of the member in compound fracture was resorted to formerly with great frequency in hospital practice. Until the in-

troduction of reliable and scientific antiseptics, pyæmia destroyed the life of almost every patient suffering from compound fracture who was brought to a large metropolitan hospital. The time is within my own recollection when amputation was immediately performed as routine treatment in Bellevue Hospital upon the admittance of a severe compound fracture to prevent blood poisoning; and this operation was considered by surgeons as offering to the patient the best chance of recovery. At the present time limbs are saved which were then sacrificed, and it is a rare event to witness an amputation in compound fracture. Extensive fracture of the bone with protrusion of the fragments through the soft structures would not now form an indication for amputation, unless the soft structures were badly lacerated.

A fracture into the ankle- or knee-joint was, until recently, considered an injury requiring amputation; but now the joint is washed out and provided with free drainage, and the fracture repairs, and the function of the joint is fully restored. I have recently treated a case of compound fracture and dislocation into ankle-joint, with protrusion of astragalus out of the wound. This bone was returned to its proper place, and free drainage was afforded after irrigation of the joint. The joint was perfect in all its movements after a fortnight. I have two cases now under treatment, but it is too soon to predict as to the function of the joints. Formerly the loss of a few inches of the shaft of the bone called for primary amputation. This no longer offers an indication, for the bones are brought together by silver wire, and though the limb may be shorter than the opposite one, the member is still retained and elevation of the shoe compensates for any slight irregularity in the gait. In one case which I treated where four inches of the tibia were removed, the patient made an excellent recovery, and to day has a better leg than any artificial one. In this box is the piece of the shaft which was removed from the patient to whom reference has just been made.

The limits to which amputation in compound fracture may be resorted to, are exceedingly narrow and restricted, and this conspicuous clinical fact is one of the most notable steps in the march and advance of modern and conservative surgery.

Another important point in reference to an amputation in compound fracture is the proper line of treatment to be pursued up to the time of the operation. It often happens that a patient is suffering too profoundly from shock to make it expedient to operate. In these cases I have found great benefit to be derived from deferring the amputation, even several days, until the condition was such as to justify the operation. Formerly this could not be done without subjecting the patient to a greater risk from septic infection than would be incurred in an amputation during shock. If the wound is made at once aseptic and compresses be placed over the fracture to control the hemorrhage, and these compresses do not extend any higher than the wound itself, the amputation can be deferred. It is important that these compresses be applied only over the wound, and that no form of compress or bandage be applied to the limb above the injured part, for if this is done there is danger of dry gangrene in the flaps above the wound. In one case this accident occurred from a neglect of this rule, though the compression was made before the patient was brought to the hospital, and in no way could any neglect be attached to the hospital authorities.

The complete history of the five hundred and sixteen cases of compound fractures I have here before me on this table for inspection and examination. Each case is given in full with the name of the patient, the date of his or her admittance to the hospital, the age, a description of the injury, the treatment in full, and the result. I have also here in this large roll of papers most of the temperature charts. In these glass bottles are the pieces of skull which have been preserved, and are labelled to correspond to the cases given in the table. Upon this table are the bones of the leg, thigh, arms, and forearm in which amputation was performed, also the pieces of bones from the joints, which pieces were removed by resection. I have preserved these specimens with great care. It is obvious that time will not permit the reading of these histories, amounting to 516 in all, and therefore I can only give a summary which will include them all. I would state, however, that anyone desiring to take the time is at liberty to examine each case.[1]

The list of compound fractures of the *skull* contains 107 cases, 68 of which recovered and 39 of which died; 31 of the fatal cases died within 48 hours after the receipt of the injury. Of the remaining 8 cases, 1 died one month after the operation of trephining from exhaustion and inanition, with the wound healed. The autopsy, which was made by Dr. Grauer, showed nothing in the brain to account for the death. Of the remaining 7 cases, 3 died from cerebral softening, as in apoplexy, disconnected with the original wound, and 2 cases from irreparable damage to the brain, one being extensive cerebral laceration due to the lock of a gun driven through the skull, the other being a fracture at the base of the skull. The remaining case died in 52 hours from lepto-meningitis following the operation of trephining, in which the dura mater was found injured.

The list of compound fractures of the *arm* contains 15 cases, 14 of which recovered and 1 died. The fatal case was a railroad injury, with great crushing of the parts, and the patient died in 48 hours, having never rallied from shock.

The list of compound fractures of the *forearm* contains 23 cases, of which 22 recovered and 1 died. This fatal case, which was complicated with extensive burns, never rallied from shock and expired within 24 hours.

The list of compound fractures of the *thigh* contains 53 cases, of which 48 recovered and 5 died. In the fatal cases death occurred within 48 hours.

The list of compound fractures of the leg contains 150 cases, of which 15 required primary amputation; of the remaining 135 cases, 125 recovered, 2 were

[1] [The full history of these cases, in tabular form, accompanied this paper, but we regret that the large amount of space which they would occupy precludes their publication in The News.—Editor.]

transferred at their own request from hospital immediately after admittance, and 8 died, and none of these 8 fatal cases survived forty-eight hours.

The list of compound fractures of the bones of the *hand and foot* shows 37 cases. Many of these cases of compound fracture were complicated with great laceration and crushing of the soft tissues. These injuries were caused by heavy weights falling upon the hand or foot, or by circular saw or railway accidents. In many cases the damage to the soft parts was very great. The joints were opened, the tendons exposed, the soft parts crushed, and the tissues generally torn and lacerated. These cases all recovered, with the exception of one which terminated fatally from other injuries and to which reference will be made later.

The table of compound fractures involving the *shoulder-, elbow-, and wrist-joints*, contains 23 cases, all of which recovered.

The table of compound fractures involving the *hip-, knee-, and ankle-joints* contains 43 cases, 4 of which required primary amputation, and 3 of which were fatal. Of the three fatal cases one died of tuberculous meningitis some weeks after a resection of the hip-joint, another died within twenty-four hours from shock, and the third died a week after wiring of the patella from Bright's disease which caused uræmia. The joint wound was aseptic. In none of the three fatal cases involving these major joints could septic infection have been a cause of death.

The table of compound fractures involving the *carpal and metacarpal and the tarsal and the metatarsal joints* contains twenty-four cases, all of which recovered.

The table of compound fractures of the *upper and lower jaws* contains 28 cases, 4 of which were fractures requiring suture by silver wire, and all of which recovered.

The table of compound fractures of the *ribs and nasal bones* contains thirteen cases, twelve of which recovered; the one fatal case was that of a patient who received a compound comminuted fracture of all the bones of the face and some of the skull, the result of the fall of a heavy derrick upon his head. The patient died in thirty-six hours.

The table of compound fractures of the *ilium and the malar bones* contains three cases, one of the ilium and two of the malar bones, all of which recovered.

A final summary of all of these cases of compound fractures of the different bones of the body is as follows:

Skull	107
Arm	15
Forearm	23
Thigh	53
Leg	150
Fingers and toes	37
Fractures involving shoulder-, elbow-, and wrist-joints, result of accident or of operation	23
Fractures involving hip-, knee-, and ankle-joints	40
Fractures involving carpal and metacarpal, tarsal and metatarsal joints	24
Superior and inferior maxillary bones	28
Ribs and nasal bones	13
Compound fractures of the ilium and malar bones	3
Total	516

In this total of 516 cases of compound fractures, produced by traumatism or by operation, there were 59 deaths, 19 primary amputations, and 2 cases where the result was unknown on account of the removal of the patients, at their own request, from the hospital immediately after their admittance. In the 59 fatal cases, 49 died within forty-eight hours after the accident and during shock, and consequently these deaths should not be included in any figures to ascertain the percentage of mortality, because the patients died before any plan of treatment could be adopted having reference to the repair of the fracture, or to the prevention of septic infection.

The remaining ten deaths occurred in the following manner: one from tuberculous meningitis following some weeks after a resection of the hip-joint, so that this case died from other causes than septic infection; another patient died from uræmia in chronic Bright's disease one week after wiring the patella, and the wound was aseptic, so that this case died from other causes than septic infection; another case died one month after trephining from exhaustion and inanition, with the wound perfectly healed by primary intention, and at the autopsy with no evidences in the brain of pathological changes indicating sepsis as the cause of death, so that death in this case cannot be attributed to septic infection; two other cases died from irreparable damage to the brain, in one of which a lock of a gun was driven through the skull into the brain, and in the other a fracture at the base was found at the autopsy in addition to the fracture of the parietal bone, so that death in neither of these two cases was due to pyæmia or septicæmia; three other cases died from cerebral softening which was situated at a distance from the original wound.

In reference to these cases of cerebral softening, following the injury, a word of explanation seems pertinent. These circumscribed areas of softening in every respect resembled the changes which are found after apoplexy. There was no local evidence of septic infection, and in all the three cases the autopsies were made by experienced pathologists, who coincided in this opinion. The situation of the softened areas at a point distant from the original wound, and the changes—*i. e.*, hemorrhage and softening, the perfect aseptic and healed condition of the external wounds, which are identical with those found in cerebral apoplexy—indicate that these three cases are not of septic origin from the wound.

The cerebral softening appears to be due to a molecular disintegration or laceration of brain tissue from traumatism, and this disturbance of the nutrition produces a metamorphosis and the liquefaction takes place. The external surface of the dura mater seems to possess power to prevent the entrance of septic microörganisms into the cerebral substance; while the internal surface of the dura mater, owing to its proximity to the arachnoid space, is exceedingly delicate and susceptible to the slightest influence of any septic material. Experimental work in this direction indicates that such points of softening may have their origin in traumatism and not necessarily be due to sepsis. I believe that these three cases are explained in this way, and therefore these cases may

be eliminated from the list of deaths due to septic infection derived from the wound in the skull.

I feel certain that these softenings were not the result of infection from the wounds; because the wounds were aseptic. To convince myself further of the accuracy of this conclusion I trephined the skull of a dog and planted upon its dura mater septic micrococci, which were furnished to me from cultures belonging to Dr. Biggs. Though the micro-organisms were septic, they were incapable of developing a cerebral abscess through the dura mater or even producing a meningitis.

Such an experiment, while it is not conclusive, of course carries additional evidence in favor of the non-septic origin of such cerebral softenings, though they may be due to the presence of some such micro-organisms as bacilli tuberculosis; but at the same time the traumatism may have acted as an exciting cause to develop an abscess in tissue already impregnated with a pathogenic germ. This explanation places a higher value upon antiseptic surgery, and it serves also to illustrate at the same time that an operation like trephining may be a brilliant success so far as the operation is concerned; but yet the patient perishes from causes which are as yet beyond the complete control of the surgeon.

There is still an unoccupied field for further investigation and research in this domain of surgery, and surgeons must turn the direction of their studies to those causes of death which are not connected with the details of antiseptic surgery. Perfection has been almost reached in the technique of the operation of trephining, but as yet there are circumstances which are not controlled by the practical surgeon and to a study of these causes future scientific surgery must engage.

Finally, to refer to the two remaining deaths, which may be fairly considered as septic. One of these cases died from lepto-meningitis fifty-two hours after the trephining, and the last case in ninety hours after a crushing of the foot, in a patient over sixty years of age. This makes only two deaths which could be ascribed to septic infection.

Deducting from the original 516 cases the 49 cases which terminated fatally within forty-eight hours, and the 19 cases which required primary amputation, also the 2 cases which were immediately transferred at their own request from the hospital, there remain 446 consecutive cases of compound fractures, with only 2 deaths. This shows a rate of mortality of less than one-half of one per cent. If now the 61 cases of compound fracture of the bones of the hands and feet be excluded as too insignificant, in accordance with the custom among all surgeons in their statistical reports of compound fractures, there still remain 385 consecutive cases of compound fractures, including, to the best of my knowledge, every case which has come under my treatment, with but one death, which gives a still less percentage of mortality, which is less than one-third of one per cent.

In order to appreciate what progress surgery has made during the last half century in the treatment of compound fractures, it is interesting to examine hospital reports embracing this period. Before the introduction of antiseptics the best statistical reports of compound fractures are those of Norris. He showed that in the Pennsylvania Hospital, between the years 1839–1851, there were treated 116 cases of compound fractures of the leg and thigh (excluding those cases requiring amputation), with 51 deaths, thus giving a rate of mortality of 44 per cent. This is only an approximation, as the table does not state whether any amputations were primary or secondary. In the New York Hospital, during the same period, there were treated 126 cases of compound fractures of the leg and thigh (excluding those cases requiring amputation), with 61 deaths, thus giving a rate of mortality of 48 per cent. The previous remark also applies to this percentage, but in neither case would the percentage be notably decreased.

A decade later, from 1860–1876, there were reported from the surgical clinics of Vienna and Zurich, by Billroth, 180 cases of compound fractures. Excluding those cases of amputation, there is a mortality of 31 per cent. from septo-pyæmia. In the Obuchow Hospital Reports of St. Petersburg there are reported 106 cases of compound fracture, with a mortality of 68 per cent. No particulars are given, in this high death-rate, as to whether patients died from shock, amputations, etc. In Guy's Hospital, from 1841–1861, there were reported 208 cases of compound fractures, with 56 deaths, thus giving a mortality of about 26 per cent. In other words, it is shown by these figures approximately that, before the introduction of antiseptics into hospital practice in the treatment of compound fractures, that the rate of mortality in the best tables varies from 20 to 60 per cent.

If now some statistics are examined after the introduction of antiseptics, with a view to ascertain their influence upon the rate of mortality, one is at once confronted with an astonishing fact. If, for example, Billroth's table is referred to after the use of antiseptics, the death-rate is reduced to one-tenth of what it had been formerly in the treatment of compound fractures. The influence, therefore, of antiseptics has caused the death-rate to fall from twenty to sixty per cent. to about four per cent. within a period of a few years.

In the present report of 516 cases of compound fractures, if we compare the fractures of the *extremities* only, as has been the case in the above tables, there is no death from septo-pyæmia, and thus the rate of mortality from blood-poisoning is now reduced from sixty per cent. to a figure which is represented by a cipher. It may be said, therefore, that pyæmia and septicæmia, which destroyed as many as sixty per cent. of human lives in cases of compound fractures, have been practically eliminated as causes of death.

The science of surgery has at last demonstrated to the world that it has fairly met this demon of destruction, and conquered him; and, in conclusion, in referring to this great reduction in mortality, an inquiry is not inappropriate as to the means which has brought it about, and also as to the special influence to which it is due. Without doubt, the science

of bacteriology has largely contributed to this object, and this building in which we are now convened, with its spacious laboratories devoted to this study, attests the importance in which this work is held, and also without doubt the one to whom the profession is indebted for the practical application of this science is Sir Joseph Lister, whose name can never be disassociated with the march and progress of surgery.

A PARTIAL STUDY OF THE SEASONAL RELATIONS OF CHOREA AND RHEUMATISM.[1]

By MORRIS J. LEWIS, M.D.,
of Philadelphia.

The present paper is based upon a study of the seasonal relations of chorea and rheumatism, and for this purpose the weather at Philadelphia for the years 1876–1885, inclusive, has been investigated, together with the number of storm centres, or centres of low barometer, passing across or near the United States. These data were obtained from the monthly weather reports, and from the records kept at the signal station in this city, which have been kindly placed at my disposal.

Recent investigations undertaken by me in 1881, in regard to the relation existing between the number of cases of chorea and the varying states of the weather, showed such a curious resemblance between the chorea and storm tracings that I deemed the subject worthy of further study.

The former work is embodied in Dr. S. Weir Mitchell's *Lectures on Diseases of the Nervous System, especially in Women*, and the statistics there mentioned were based upon the study of the months of onset of 170 separate attacks of chorea occurring in the years 1876–1880 inclusive, but at that time the storm records of the years 1878–1880 inclusive only were available, during which time 87 of the above-mentioned 170 attacks occurred. For the present study I have collected all the separate attacks of chorea which have been noted at the clinics of the Orthopædic Hospital and Infirmary for Nervous Diseases during the years 1876–1885 inclusive. These number in all 437, and necessarily include those previously studied.

As it is a well-recognized fact that a relationship exists between chorea and rheumatism, which, it is needless to say, is as yet imperfectly understood, I thought that it would be of much interest to compare with the cases of chorea the months of onset of attacks of acute inflammatory rheumatism occurring during the same period, and for this purpose have carefully studied the notes taken at the Pennsylvania Hospital, which have been placed at my disposal; from these I have collected 467 separate attacks of rheumatism, having excluded those that are at all doubtful, and those which occurred among sailors at sea, who were afterward brought to this port.

It must be borne in mind that while the records of the weather are complete as far as they go, the cases of disease here reported are but a small portion of those that must have occurred in this city during that decade; but, despite this fact, there is every probability that the percentage of chorea cases per month is practically correct, as may be seen by the almost exact resemblance between the two tracings of 170 and 437 attacks, respectively; Nos. 3 and 5.

To study properly the effect of the weather upon disease, there should be a *daily* record of both weather and disease taken, as has been so carefully done in the relation of pain to weather by Captain Catlin, recently reported by Dr. Mitchell before the College of Physicians (*Transactions of the College of Physicians of Philadelphia*, vol. vi.). In the diseases in question, however, the *day of onset* could only be obtained with certainty in a few cases, and, therefore, it was necessary to be satisfied with the *month of onset;* this, of necessity, destroys, to some extent, the value of the observations, but sufficient of interest remains to justify the present study. By taking the average of too long a period of weather the effect of sudden changes and all irregularities are lost sight of, and in this way some facts of importance may be overlooked.

In the present study the monthly average of the weather for ten years has been taken and compared with the monthly average of disease, but the peculiarities about to be spoken of are best seen when a table is made which shows the mean of the ten years in question, month by month.

The accompanying chart is so arranged by repeating the first half of the year, that any portion of the tracings may be studied in unbroken sequence.

Tracing No. 5 represents the *months of onset* of 437 separate attacks of chorea, and shows the actual number for each set of months, or the average number for each set, according to the manner of reading the figures; thus, January shows 36 attacks, which means 36 attacks for the ten Januarys, or 3.6 cases as an average for each January.

This tracing will be seen to be lowest in October and November, 18 and 19 attacks, respectively (4.1 and 4.3 per cent.); it then rises rapidly, until 36 attacks in January have been reached (8.2 per cent.), falls slightly in February, and again rises, reaching its highest point in March, which shows 67[1] attacks (15.3 per cent.); the line then falls in April to 38 attacks (8.6 per cent.), and after two more rises—one in May, 47 attacks (10.7 per cent.), and the other in July, 46 attacks (10.5 per cent.)—falls almost perfectly regularly to its lowest point in October. Before attempting to find an explanation for the high percentage in March, I will again draw attention to tracing No. 3, which represents the 170 separate attacks previously reported; this will be seen to resemble, in every essential particular, the tracing we have just studied. These cases I have included in the present paper. Nothing especial is seen in comparing with the chorea tracing, that of the *mean relative humidity* (No. 9), or that of the *mean barometer* (No. 2), except that there appears to be an increase in the number of attacks of chorea with a fall of the mean relative humidity and barometer tracings; neither is much seen in comparing

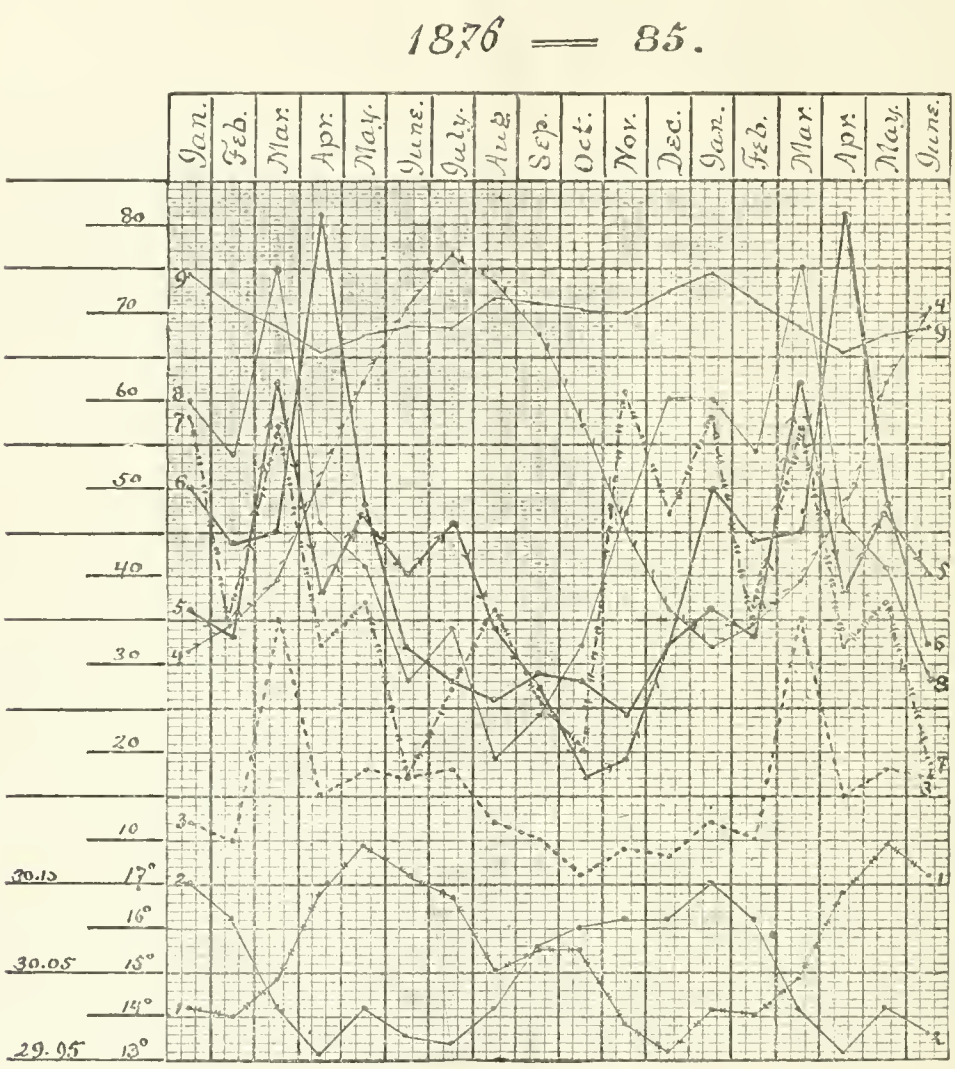
[1] Read before the Philadelphia Neurological Society, October 25, 1886.

[1] Owing to a mistake in the chart, March shows 62 attacks instead of 67.

with it the mean daily range of the thermometer (No. 1), which shows the variableness in temperature of the different months; this is greatest in May, and least in December.

to the chorea tracing. These lines are not shown on the chart.

The probable cause of the resemblances noted becomes more apparent when the storm tracing is



Tracing No. 1, mean daily range of thermometer.
Tracing No. 2, mean barometer.
Tracing No. 3, 170 separate attacks of chorea, occurring in 1876–80.
Tracing No. 4, mean thermometer.
Tracing No. 5, the months of onset of 437 separate attacks of chorea.
Tracing No. 6, the months of onset of 467 separate attacks of acute inflammatory rheumatism.
Tracing No. 7, number of cloudy days.
Tracing No. 8, storm centres passing within 400 miles of Philadelphia.
Tracing No. 9, mean relative humidity.

A resemblance begins to be apparent between the chorea tracing and the tracing of cloudy days (No. 7.) The mean temperature tracing (No. 4) does not throw much light on the subject.

The tracings of the number of days on which rain or snow fell and that showing the amount of rain or melted snow in inches also show a slight resemblance

studied, because these meteorological factors may be considered as component parts of a storm.

Tracing No. 8 represents the number of storm centres (or centres of low barometer) passing within a circle of 400 miles radius described around Philadelphia as a centre.

In studying the storms, circles of varying radii

were thus drawn around Philadelphia and the number of storm centres, as marked on the weather bureau maps, counted in each, but the closest resemblance appeared to be with the number of storms passing within the 400 mile circle, and for this reason it is the only tracing that I have placed on the chart. In the former study the great resemblance between the chorea tracing and the storms within the 750 mile circle was pointed out, but the result of the present study being more exact and more extended is the one to be most relied upon.

The smallest number of storms passing within the 400 mile circle occurs in August, a rapid rise of the tracing then takes place until December and January are reached, then there is a slight fall in February, immediately followed by a rise to the highest point in March, after which there is an irregular fall until the low point in August is reached.

Any one looking at these two tracings, as shown in the chart, will have to acknowledge that the marked resemblance which exists is more than accidental, but to decide which factor in this complex disturbance, which we call a storm, is the baneful one, or in what manner it acts, is difficult.

Let us now turn to another disease, and study its tracing, and for this purpose acute articular rheumatism has been selected on account of its well-recognized relation to chorea.

Line 6 represents the months of onset of 467 separate attacks of this affection, and, like the chorea tracing, represents the actual number for each set of months, or the average per month.

November shows the fewest attacks, viz., 24, or 5.1 per cent.; from this point the tracing rapidly rises until January, with 50 attacks (10.7 per cent.), is reached, then falls slightly in February and March, to rise to its greatest height in April, 81 attacks (17.3 per cent.); from this point it rapidly falls to 32 attacks in June (6.8 per cent.), and then gradually and slightly irregularly falls to its lowest point in November.

While the chorea tracing shows a strong tendency to keep pace, month by month, with the irregularities of the storm tracing, that of rheumatism while also strongly resembling the latter, may be seen to be exactly *one month later*, looking as if the effect of the meteorological changes was immediate in the case of chorea (as it is now acknowledged to be in some varieties of neuralgia), and preparatory only in the case of rheumatism.

From the close relationship known to exist between these two diseases, one might be led to suppose that the rheumatism tracing would precede, or at least accompany that of chorea, instead of following it, as this study seems to show.

In Zurich, according to Lebert, as quoted by Senator in Ziemssen's *Cyclopædia*, out of 220 cases of rheumatism during the years 1853 to 1859, the highest percentage occurred in January, 9.5 per cent., and in April, 13.3 per cent., agreeing exactly with the months of highest percentage in this city. A study of the storm records abroad, and their relations to rheumatism and chorea, would be interesting, and probably explain the seeming diversity of opinion.

Many of the statistics of chorea are of but little value in this connection, as the months of application for treatment, and not the months of onset, are given.

The reports of observers in different countries do not agree as to the season of the year in which chorea is most prevalent.

Angel Money (*Brain*, 1882, p. 512) reports the *months of application for treatment* of 224 cases to University College Hospital, and to the Hospital for Sick Children. The greatest number occurred in January, viz., 30 cases, and the smallest number in July, August, and September, viz., 11 cases each. Arranged according to seasons, spring shows 70, summer 47, autumn 44, and winter 63.

Germain Sée (*De la Chorée*. Paris, 1850, p. 460) is the authority for the statement that, in France, chorea is principally observed in the autumn and winter. My cases, arranged according to seasons, show the following order: Spring 152, summer 120, autumn 64, winter 101.

A comparison of the rheumatism tracing of this table with the varying states of the weather, leaving out the storm records, does not explain the reason of the highest point in April. That month shows the lowest mean relative humidity, and also the lowest barometer; but, in opposition to this, the next highest month, viz., January, gives the highest mean relative humidity, and the highest barometer. The temperature in April averages a little over 50°, and January about 32°. The most changeable month is May, so that this cannot be the explanation.

It may be well to explain that the mean relative humidity does not show the *mean actual amount* of moisture contained in the air, but the *mean per cent.* of the moisture that could be held in suspension at the *mean temperature* of each month; the amount representing complete saturation being indicated as 100.

Thus a given bulk of air at a low temperature, if saturated, and ready to drop its moisture, will become dry, if the temperature is raised, although it still holds the same amount of moisture.

This study may be considered as forging one more link in the obscure chain which binds together these two dissimilar affections.

A CASE OF PSEUDO-MUSCULAR HYPERTROPHY AFFECTING THE MUSCLES OF THE FOREARMS, ESPECIALLY THE FLEXOR GROUP.

By FRANCIS X. DERCUM, M.D.,

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J. R., aged forty, an Englishman by birth, and a mechanic by profession, of robust and healthy appearance, presented himself at the University Hospital. He complained of a gradual and increasing inability to do his work, which consisted especially in filing. He stated that he had noticed the trouble for several months. An examination disclosed the grip to be somewhat diminished, especially on the right side. The muscles presented nothing unusual

beyond a slight diminution in the response to both faradism and galvanism. The case was thought to be one of muscle-tire from overwork. Intramuscular injections of strychnia, faradism, and massage, were prescribed, together with absolute rest. The treatment, though faithfully carried out, proved absolutely of no avail. After a time, it was noticed that the forearms were increasing in size, and, in fact, the patient complained of a *sense of tightness* over the bellies of the muscles.

After having been under observation for a year, the muscles of the forearms, especially the flexor group, were very much swollen and enlarged. The grip was now decidedly diminished, and became rapidly exhausted by repeated efforts. The quantitative diminution of the electrical reaction was also much more pronounced. These phenomena were all most marked on the right side.

A small piece of muscle was now removed from the flexor group of the right arm, and examined microscopically. It exhibited an undoubted increase in the nuclei. This was noted, not only throughout the tissue, but also in the walls of the capillaries. A preparation stained by osmic acid showed a decided increase in the interstitial fat.

The microscopic examination, of course, left no doubt regarding the nature of the case. There also is no *à priori* reason why pseudo-hypertrophy of the muscles should commence in, or be confined to, the lower limbs, or why it should not begin in the adult. The case before us, however, is certainly very rare. It recalls a number of cases described under the head of *true* muscular hypertrophy by Auerbach, Berger, Benedict, Friedreich, and others. The unsatisfactory character of the evidence on which these cases rest is instanced in the examination of Friedreich's case by Erb, the electrical reactions being normal, with the exception of the ball of the thumb, which had the *appearance of being atrophied.* It looks, indeed, as though these cases presented merely stages in the course of a pseudo-hypertrophy. Again, that pseudo-hypertrophy and muscular atrophy are closely related is shown by the fact of the not uncommon coexistence of both states in the same patient. Mills and Kerlin have published a number of such cases. Again, at the last meeting of the American Neurological Society, Dr. Bishop reported a case of ordinary pseudo-hypertrophy, and presented sections of the spinal cord of the same, prepared by Dr. Amidon, in which lesions of the anterior cornua existed which were in no way distinguishable from those of ordinary muscular atrophy. The lesions, too, so far as the muscles are concerned, it must be admitted, differ rather in degree than in kind. In both cases we have atrophy of the true muscular fibres, and in pseudo-hypertrophy an added interstitial deposit of fat and connective tissue.

The difference in the clinical history of the average case of muscular atrophy and that of the average case of pseudo-hypertrophy must depend on secondary factors not yet determined. It may be well to add that, in the case here described, the muscles of the upper arms and shoulders gave no decided evidence of being implicated. An examination of the legs and trunk yielded a similar negative result.

MEDICAL PROGRESS.

Influence of High Temperatures in Pregnancy.—Negri, stimulated by the labors of Runge and Doré-Doleris, has made numerous experiments upon guinea-pigs and rabbits with the following results:

1. High temperature may alone be a cause of interruption of pregnancy.

2. Temperatures of from 106.7° F. to even 109.4° F., may often be borne without harm by pregnant and non-pregnant animals, when the exposure is of but short duration, nor do they under these circumstances induce the death of the fœtus.

3. Even when exposure to high temperature is followed by abortion, the death of the fœtus is by no means a necessary consequence.—*Centralb. f. Gynäkologie*, October 16, 1886.

Is Alopecia Prematura Contagious.—At a meeting of the Chicago Medical Society, on October 18, 1886, Dr. R. W. Bishop read a paper thus entitled. He thought this disease due to microörganisms upon the shafts of the hair, and that it is contagious. He has made a series of experiments, assisted by Dr. Oscar Lassar. A typical case was that of a pefectly healthy young man whose head was nearly bald on top. The hair from the diseased surface was brittle and came out easily when pulled. Microscopic examination revealed a large number of fungi on the scalp and the shafts of the hair, the root being free from the parasite. The diseased hairs were cut and mixed with vaseline, which was rubbed on the skin of healthy rabbits, and in two weeks the hair entirely disappeared from the parts which had been rubbed. Experiments were continued, and it was found that the hairs from the inoculated animals possessed increased virulence.

The patient was treated as follows: The head was thoroughly washed for fifteen minutes with tar soap, which was removed with warm water. The head was then exposed to a warm water douche, which was gradually cooled until the water was quite cold; it was then rubbed with a rough towel until dry, and afterward washed with a solution of corrosive sublimate 1 : 500. This was removed, and a half per cent. solution of lithol applied, and, after this, one and a half per cent. carbolic oil was applied very slowly. The treatment was continued daily for eight weeks, and the result was a fine growth of new hair with beginning pigmentation at the end of three months.—*Cincinnati Lancet-Clinic.*

Potion used in Diabetic Thirst.—Duchenne gives the following formula as of value in the treatment of the excessive thirst of diabetic patients:

Potassium phosphate . . .	2 parts.
Water	75 "

A teaspoonful of this solution is given twice or thrice daily in a little wine or hop tea.—*Les Nouveaux Remèdes*, Oct. 1, 1886.

Diseases of the Skin in the Subjects of Gout.—Dr. Corlett believes that the subjects of gout are predisposed to skin diseases which have peculiarities that "may be described as a hybrid between eczema and psoriasis." Those that he has observed were: First,

scaly ; the scales were neither heaped up nor of silvery character as in psoriasis, and when detached they left an oozing surface. Second, their color was reddish, closely resembling a syphilide. Third, they showed a tendency to symmetrical distribution. Fourth, they were met with in adults usually over forty-five years old, except when the gout was inherited. Fifth, they were accompanied by other evidences of lithæmia. Sixth, they were prone to return. These eruptions were most benefited by treatment directed to the gouty diathesis. Locally most benefit was derived from alkaline baths, preparations of tar, and ammoniated mercury.—*Journal of Cutaneous and Venereal Diseases*, Sept. 1886.

Lubricant for Speculum.—Brondel commends as an antiseptic lubricant for instruments intended for insertion in the vagina a pomade thus constituted :

Boracic acid,	
Essence of eucalyptus . .	āā 10 parts.
Vaseline	100 "

For application to the hands he employs a more strongly antiseptic compound of vaseline and sublimate (1 : 1000) containing 10 per cent. of the essence of eucalyptus. The odor of the last-named constituent is found to mask that of the vaginal secretions which is occasionally so tenacious and penetrating. The mixture last mentioned is, however, inapplicable to metallic specula, as the surfaces become tarnished under its use.—*Gazette de Gynécologie*, October 15, 1886.

Fish as an Invalid Diet.—In the *Lancet*, August, 1886, p. 396, Mr. Nairne gives a series of cases in which a fish diet gave rise to very serious mischief. Several cases are related in which convalescents from typhoid fever met with a fatal relapse after partaking of some boiled fish. For some time the author excluded fish from invalid diet, as he thought it the cause of all the mischief. Lately, however, he has found that if fish be steamed it is more tender, and can be eaten with impunity.

A Cause of Indigestion in Infants.—Dr. Chas. P. Woodring, of Meadville, Pa., narrates a case of vomiting and diarrhœa in a bottle-fed infant, which had resisted all the ordinary remedies. Having given more than usual attention and care to the quality, dilution, etc., of the milk, he finally learned that the cow from which it was obtained was pastured in a wood lot. The milk was immediately discontinued, and that from the cow of a milk breeder substituted. The effect was magical ; the child recovered its usual health forthwith. Another case, the symptoms being similar to the preceding one, presented itself. On investigation, it was found that the milk was supplied by a cow that was also pastured in a wood lot, but this pasture was two miles distant from the one referred to in the first case. The hint received in the treatment of the previous patient being acted upon, and the milk from a cow pastured in an open field substituted, the result was equally happy. A third patient, under exactly the same circumstances, and treated in exactly the same way, came under observation, followed by an identical successful treatment. The water in these wood pastures was exceptionally good, but the grass was scanty, and as these three cases all came under observation within a month, the conclusion one would naturally arrive at would be that the source of irritation in the milk must have been due to the leaves of trees. Had the milk substituted been in each case from the goods of the milkman, some might credit the *carb. calcis* and the high dilution with all the benefits derived from the change of milk.—*Cleveland Medical Gazette*, October, 1886.

Iodide of Potassium in Mineral-water Menstrua. —Dr. v. Höaslin proposes, in a German medical journal, to correct the taste of iodide of potassium by dissolving it in carbonated water. He finds that by this means the nauseous taste of the iodide is almost entirely neutralized.

Quinine as an Anaphrodisiac.—Dr. J. A. McKinnon, of Selma, Ala., has found in his practice that the continuous use of sulphate of quinine will reduce the venereal desire, and that in old age it will destroy the animal propensity completely. He says that he has had cases under observation for several years who took from five to twenty grains daily, not for anti-malarial purposes, but because they had formed the quinine habit, and he has found on inquiry of such patients that the venereal desire in them was diminished, impaired, or destroyed. In most cases the subjects would become alarmed at their condition, and ask for relief. In the treatment of gonorrhœa in this malarious section, Dr. McKinnon often administers quinine in the inflammatory stage, for the dual purpose of counteracting any malarial complication and to control chordee. It must for this purpose be administered in not less than ten-grain doses at proper intervals, and it acts, he writes, in this respect more satisfactorily than camphor, lupuline, or the bromides.—*New York Medical Record*, October 30, 1886.

Fluid Extract of Marigold in Extensive Burns. —Dr. Sexton presented the following points of practical interest at the nineteenth annual session of the Mississippi State Medical Association, the *Transactions* of which meeting have just been published.

Having had a series of severe cases of burns during the past year, I have thought my experience with the fluid extract of calendula officinalis might prove of interest to the profession.

My first case was a little child, severely scalded by pulling over a pot of boiling water. This burn might be classed of the second degree. I ordered a drachm of the fluid extract of calendula to an ounce of the ordinary carbolized oil, and had the most satisfactory results. The child stopped screaming as soon as the oil was applied, and made a rapid recovery in two weeks. The skin had peeled off from the elbows down to the hand.

The second case was one where the clothes had caught fire, and was more or less burned all over the back. In some places even the flesh was charred.

The same application was made, with equally gratifying results. The carbolized oil itself is a good dressing, but its healing properties are increased tenfold by the addition of a drachm of marigold to the ounce of oil. It has another advantage of rendering the oil much less offensive to the olfactories. The odor of

marigold is pleasant, and it makes an efficient dressing in cases of severe ulcerating sores and wounds. I found it of invaluable service in treating the extensive wounds and lacerations after the cyclone at Wesson and Beauregard, and deemed it of sufficient importance to call especially the attention of members of our Association to its virtues.

Lead Poisoning by "Flake White."—Dr. D. W. Hand, of St. Paul, Minnesota, describes in the *Northwestern Lancet* of October 15, 1886, the following interesting case of lead poisoning by a cosmetic.

During the early summer a young woman called on me twice, and wanted something for a pain in her stomach, which she called neuralgia. Noticing her peculiarly pale and emaciated condition, I thought she must have a gastric ulcer, but could get no history of vomiting or any symptom except periodic pain. For this I prescribed an anodyne, and thought to investigate further, but lost sight of the case.

On August 14th, I was called in haste to see a young girl who was said to be in convulsions. On reaching the house, I found, in a badly lighted room, a girl writhing and rolling about the bed, but with no sign of convulsion. Her mother at once, with many lamentations, gave me this history: The girl was twenty-four years of age, and had been sick for over three years, being thin and weak and extremely pale. Her bowels alternated between constipation and diarrhœa, and very often she would have attacks of pain, like that which she was now suffering. The mother said they had employed many physicians, but nothing did any good. Their last physician had told them it was *spinal disease*.

I found the girl had both hands grasped tightly about the right thigh just above the knee, and she gave me to understand that was the seat of the worse pain. From her ell-like motion it was plain there was no disease of the spine; and when lights were brought, my attention was at once called to a peculiar *wrist-drop* on both sides. Examining then her mouth, I found the characteristic blue line on the gums, and at once told the mother it was a case of lead poisoning. She protested it could not be so, for they drank pure cistern water, were very careful, etc., and moreover an older daughter was affected much the same way. On calling that girl in, she proved to be the slim patient who had visited my office; and a new light was thrown on her case. She had no wrist-drop, but often some pains in her abdomen and legs, and examining her gums, I found the same blue line, even more distinct than in her sister's case.

Questioning this girl about the use of hair-dye, face powder, etc., she at once told me that for many years—in fact, ever since they were grown up—they had used "Flake White" on their faces as a beautifier. This "Flake White" is the commercial carbonate of lead, and I am told by druggists that they sell large amounts of it to women. It is used by mixing with rose-water, and then as a sort of cream spread thinly over the face. It gives an appearance like enamel to the complexion, and when persistently used must be very injurious.

After many days of intense suffering and mild delirium, the young girl was able to get up and crawl about the room. Both girls were then put on free doses of iodide of potassium; were told to eat all the watermelons they could, and to take a hot bath three times a week. Their improvement has been quite surprising, and yesterday, October 12, 1886, their mother told me they had not been so free from pain or seemed so well for nearly four years.

The Connection Between Pulmonary Phthisis and Ovarian Disease.—At the end of an extensive article thus entitled, Dr. Bedford Fenwick speaks as follows:

I would, therefore, sum up my conclusions thus: 1. Ovarian cystoma is caused in many cases by an inherited tendency on the part of the patient to degenerative changes. 2. This inherited tendency is due to a family predisposition to pulmonary phthisis. 3. Gestation and severe falls or strains are probably powerful exciting causes of the disease.

The practical lessons to be learnt from the facts I have given are great and varied, and, with increased investigation, leading to further and wider knowledge, will certainly prove greater still. For example, we should already, perhaps, pronounce against a woman of marked phthisical tendency encountering the risks of married life. The intimation we now have gained of the other dangers to which she and any future daughters will be exposed, should strengthen us in more decided expression of opinion. We shall, I think, be able to show that sterility will not increase such a woman's tendency to be affected by ovarian disease, but that pregnancy may very probably do so. Then we can clearly understand how an ovary which is or may be subject to degenerative changes, is more likely than a healthy one to evolve an ovum having within it the seeds of the same disease. So the practical rule would be—first, when an ovarian cyst is discovered, to insist that future conception must be prevented, and to remove the growth as soon as possible; and secondly, while performing ovariotomy, to extirpate the other ovary too. For I contend most strongly on every ground, moral and physical, that it is wrong to allow a patient who has already shown the clearest evidence of degenerated ovarian structure the opportunity of perpetuating in children yet unborn the same disease and suffering. And we have Mr. Lawson Tait's high authority for believing "that it is in no way more risky to remove two ovaries for cystoma, or anything else, than to remove one." And, moreover, it is a well-known fact, that in cases of an ovarian cyst it is very rare for the other ovary to be perfectly healthy.

In conclusion, I venture to believe that I have shown the distinct probability that the great predisposing cause of ovarian disease is a family tendency to phthisis, and that gestation may be the exciting cause. But in view of the immense importance of the subject, both to the profession and the public alike, as regards questions of diagnosis and prognosis, and the still greater matter of prevention, I would earnestly appeal to all who in future have to treat cases of ovarian cystoma, either to publish as complete as possible a family and previous history of each, or to favor me with the notes, which, of course, I would duly acknowledge. A thousand well-recorded histories would definitely settle the important points I have touched upon by the hard logic of manifold facts. I should not base implicit confidence upon a smaller series. Straws show how the wind blows, but mathematical precision can alone determine its force.—*The Lancet*, October, 23, 1886.

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GANGRENE OF THE LUNGS.

INTERESTING questions in regard to the nature and treatment of gangrene of the lungs have recently been brought again to the notice of the profession in this city by the report of a case of this disorder by DR. JOHN H. MUSSER, before the Philadelphia County Medical Society, on October 20th. In this case a large, gangrenous cavity existed in the right lung, and death occurred suddenly from profuse hemorrhage, due to giving way of a bloodvessel in the wall of the cavity. No surgical procedure was considered advisable during life, but, in the light shed by the autopsy, it was evident that it might have been undertaken without serious risk to the patient. Dr. Musser, in reporting the case, announced his conviction that pneumonia is a frequent cause of gangrene of the lung. This view is held by many excellent clinicians, and it is said to be a settled point by CARSON, the author of the article on this subject in Pepper's *System of Medicine*. Carson recognizes croupous pneumonia, catarrhal pneumonia, bronchiectasis, embolism, foreign bodies in the lungs, alcoholism, and the extension of diphtheria, as the commonest causes of gangrene; and vitiated states of the system as strongly predisposing to it.

The opinion that croupous pneumonia is a frequent cause of gangrene can hardly be considered so well established as Carson thinks. One of the most valuable contributions to the literature of this subject is by COUPLAND, in the *British Medical Journal*, of September 5, 1885. He analyzes 38 cases, collected from the *post-mortem* records of the Middlesex Hospital, from 1875 to 1885. Of these, 14 were "associated" with acute croupous pneumonia, but Coupland says that only 8 of them could be fairly considered to be dependent on the latter, 6 were associated with chronic pneumonia, 7 with cancer of the tongue or œsophagus, 2 with cancer of the lung, 2 with bronchiectasis, 4 with embolism or thrombosis in the lung, 1 with suppurating glands and tuberculosis, 1 with thoracic aneurism, and 1 with empyema and cerebral hemiplegia. It will be seen that pneumonia was the most frequent single cause of gangrene in these cases; but the termination of acute pneumonia in gangrene can only be asserted, as Coupland says, "in a fair proportion" of the cases. When the whole number of cases of pneumonia is considered, this termination is seen to be happily very rare. Out of 1065 cases reported for 1884 to the Collective Investigation Committee of the British Medical Association, gangrene occurred in only two, both being old subjects, and one a drunkard.

A careful study of the records cited by Coupland might lead to a somewhat different classification of the cases, and especially, we think, if a fuller statement were made of the general condition of the patients, including the proportion of cases in which phthisis, syphilis, diabetes, chronic alcoholism, etc., were present. The most frequent cause of gangrene of the lung may probably be said to be septic infection by matter brought either by way of the air passages, as in case of cancer of the throat, or the aspiration of foreign bodies, or by the bloodvessels, or through the lymph channels, as in empyema, or more directly by the breaking down and putrefaction of inflamed bronchial glands, or by the putrefaction of retained secretions, as in bronchiectasis.

The treatment of gangrene of the lungs is either medicinal, or surgical, or both In the former, general supporting measures are of the utmost importance, and should be combined with antiseptic inhalations, for which purpose carbolic acid is probably the most useful drug. Thus PAUL, in the *Gazette Médicale de Paris*, No. 35, 1885, reports 7 cases of gangrene of the lungs—in regard to some of which the diagnosis is questionable—treated by inhalations of carbolized air, and all cured. DUNLOP, in the *Lancet*, of November 14, 1885, reports two cases of abscess of the lung—one of which is called a case of gangrene—similarly treated, with one recovery. BONAMY, in the *Bulletin Général de Thérapeutique*, of May 15, 1885, reports good results in one case of gangrene of the lung treated with oil of eucalyptus.

One of the most important questions in regard to the treatment of gangrene of the lungs concerns the propriety of, and the indications for, surgical interference. The history of this part of our subject is recent and somewhat obscure, as the records of cases in which the lung has been operated upon for the relief of conditions of fetid tissue destruc-

tion do not always indicate clearly whether or not true gangrene was present. If we understand by gangrene, death in mass—however small—as contrasted with molecular or cellular death, there can be no doubt that many recorded cases of fetid or putrid abscesses, and even of cavities in phthisis, should be classed as gangrene. For this reason the discussion of surgical interference in gangrene of the lungs may be regarded as only a part of the discussion of such interference in putrid cavities of any sort in the lungs. Mosler is credited with first proposing incision and drainage for these conditions nearly twenty years ago, but it was first employed, we believe, by Dr. Cayley, of London, in 1879, although Radek had opened and washed out an abscess of the lung in 1879.

We have studied the records of nine cases of this operation, four for abscess of the lung, and five for gangrene. These show that recovery took place in three cases, that distinct relief was afforded four times, although the patients' lives were not saved, and that only twice did death speedily follow the operation. The results obtained in these cases, as reported by Coupland, in the paper referred to above, and by FENGER and HOLLISTER, in an admirable paper, in the *American Journal of the Medical Sciences* for October, 1881, warrant, we believe, the conclusion that whenever the diagnosis of a putrid or gangrenous cavity in the lung is reasonably established, and the patient is losing ground under strictly medicinal treatment, surgical intervention is justifiable. This intervention should consist in an exploratory puncture, followed by incision, and even, if necessary, resection of part of a rib, drainage, and washing out with some antiseptic fluid. Potassium permanganate and carbolic acid solutions have been most frequently used, but we would suggest weak solutions of permanganate of potassium for the first washing, or for several of them, and afterward solutions of boric acid, as the most innocent antiseptic known. We believe that such measures might also prove of value, in well-selected cases, in the treatment of large cavities in phthisis.

Finally, we would suggest that these views might be put in practice earlier than some writers recommend, with advantage to the patients and with improvement in the results of the operation.

SUBPERITONEAL LAPAROTOMY.

THIS is the name given by POZZI to an operation which, he claims, is particularly well adapted to insure the thorough evacuation and drainage of those parametritic collections of blood and pus in the pelvis which constitute, perhaps, the most difficult cases with which gynecologists have to deal.

While admitting that excellent results have been obtained in these cases by the ordinary abdominal incision, especially when performed by such men as Tait, Baumgaertner, Martin, Imlach, and Prengrueber, Pozzi asserts that his method is preferable for the two important reasons, that it avoids the danger of septic peritonitis, and secures a more perfect drainage. The incision is made as if for the ligation of the external iliac, and is about four inches in length; the tissues are cut through, layer by layer, until the peritoneum is reached; this is pushed upward by the finger, the encysted collection of fluid is sought for, and, when found, freely incised; a trocar is then passed into the cyst, and through its lower wall into the vagina at the posterior vault; into the opening thus made a drainage tube of large calibre is passed, so that one end projects from the vagina, and the other from the abdominal wound, and the cavity is washed out daily.

For a certain class of cases, in which the collection of fluid is of considerable size and encapsulated, this operation would seem to be very suitable; but for small collections of pus, especially in the tubes, and for those suppurating sinuses often found in cases of long standing, it would probably not give as good results as the ordinary intraperitoneal laparotomy.

Pozzi reports in a recent number of the *Gazette Médicale de Paris*, five cases operated on by the subperitoneal method, all of which recovered perfectly from the operation, although one was not benefited by it. It cannot be said that this method of operating is entirely novel, for it was fully described by Hegar, in 1881; but it seems to have been original with Pozzi, who first saw Hegar's description after having performed several operations.

RAPID TRANSIT AND THE WAGE-EARNING CLASSES.

There are many reasons why a large city should be provided with the means of rapid transit, either by elevated or underground railroads. Not the least important of these is the benefits which it will afford to the wage-earning classes, especially such advantages as arise from the comfortable and healthy housing of this portion of the population. Under existing conditions the working classes are generally domiciled near their places of employment. The loss of time, the fatigue, and the risk of disease consequent on exposure to wet and cold in travelling long distances prevent the laborer from selecting a home far from his work. The alternative is the choice of lodgings in the neighborhood of the place of employment. The great demand for a special class of property in a restricted district results in the enhancement in value of real estate, the immediate effect of which is to promote overcrowding with its attendant evils.

In order to change the order of things and overcome the evil of overcrowding and the consequent offences against health and morality, the advantages

of cheap and comfortable houses in the suburbs, where land is less valuable, must be placed within the reach of the working classes, and the bar to their enjoyment set aside by providing cheap and rapid communication with these outlying districts. This suggestion is well worth consideration by philanthropic individuals and societies engaged in providing improved house accommodation for the wage-earning classes, as it promises to help them solve a problem which they have never successfully mastered. The tenement house system, even under the influence of sanitary reform, is disastrous to health and good morals. The proper substitute is the comfortable suburban home for the workman and his family, where the conditions of health, decency, and morality are likely to obtain—a plan which is made feasible by reducing time and space by means of rapid transit.

POISONING BY HAIR-DYE.

Every now and then the public is startled by the discovery of some new method of insidious poisoning. We learn, perhaps, that there are undreamt-of poisons in stale milk, or in the glazing of stew-pans, or in the solder of fruit-cans. Not only have many in ignorance brewed poison in the pot, and made the air of their houses unwholesome with arsenical wall-paper, but they have also fairly rubbed poison into their flesh by means of the cosmetic that promises the "bloom of youth."

The recent admirable report of the Massachusetts State Board of Health contains analyses of most of the "hair restorers" to be found in the market, among others including such well-advertised preparations as Ayer's, Allen's, Barrett's, Hall's, Chevalier's, and the "Revivum." Of these, all contained lead, Parker's and Chevalier's showing most, and Barrett's "Vegetable" hair restorative least, though the latter had the equivalent of about 0.22 per cent. of lead acetate.

As among skin cosmetics, no innocent substance has the body, the smoothness, and adhesiveness that have caused fine white lead to be preferred by those who offer to hide the homeliness of complexion, so for the hair no dressing has been found to cause the desired gradual darkening without the aid of lead. Either it is mixed with sulphur in the bottle, or trusted to find enough in the hair to form there a deposit of the black sulphide of lead.

The change of gray hair to something nearer the color of youth takes place so slowly that the user is easily duped by the assurance on the label of the bottle that the fluid is not a dye, but a tonic and restorative of hair vigor. If this were merely a case of deception, it would scarcely merit the attention we have given it. But the deceiver is also a thief and a poisoner, stealing away the health that is the basis of natural beauty, and daily increasing the need for artifice to make up an appearance like the thing stolen.

From recent periodicals and works on toxicology a list of some length could be made of cases of all degrees of slow poisoning from lead hair-dyes. The lead itself has even been recovered from the body after death in two cases of which we know. Doubtless, if all the persons who have experienced harm from lead hair-dyes could be counted, the number would be sensational enough to meet the wants of the most zealous sanitarian. The effects are often so vague that the cause is not suspected. Most physicians would not assign to a cosmetic, of the use of which they are presumably ignorant, the causation of such vague symptoms as dry and sallow skin, falling hair, dyspepsia, debility, low spirits, neuralgias, and other usual phenomena of confirmed ill-health. Yet these accompany, and may exist apart from, the sharp attack of colic, or wrist-drop, or joint pains, or brain trouble, that would first direct the physician's suspicion to lead poisoning.

General discussion a few years ago did much toward reducing the harm done by skin cosmetics, when enlightened public opinion forced the proprietors to furnish a chemist's voucher of freedom from poison. It is to be hoped that the press, lay and medical, will take notice of these recent analyses, and agitate the subject anew before the public.

In this connection two important facts are now well established: First, that serious disease may be induced by the long-continued use of lead "hair restorers." Second, that the most popular, if not all, the "hair restorers," *vegetable* and other, contain lead.

The New York State Medical Association will hold its third annual meeting at Lyric Hall, Sixth Avenue, between Forty-first and Forty-second Streets, New York City, on Tuesday, Wednesday, and Thursday next. The most notable feature of the programme is a discussion on the treatment of gunshot wounds of the belly, which will be participated in by Drs. Charles T. Parkes, of Chicago, C. B. Nancrede, of Philadelphia, Surgeon-General Hamilton, of the Marine Hospital Service, J. D. Bryant, W. T. Bull, and F. S. Dennis, of New York, T. R. Varick, of Jersey City, W. S. Tremain, of Buffalo, and E. M. Moore, Jr., of Rochester.

At the stated meeting of the New York County Medical Association, to be held on Monday evening, at the Carnegie Laboratory Dr. T. Gaillard Thomas will read a paper on "Laparotomy as a Diagnostic Resource," and Dr. Ira B. Read will make some remarks on "Rupture of the Aneurismal Sac of the Aorta," and will illustrate them by a specimen.

On last Monday Harvard University concluded its celebration of the Two Hundred and Fiftieth Anniversary of its foundation. The occasion was honored by the presence of the President and his Cabinet, the Governor of the State, with numerous other high public functionaries, and many delegates from institutions of learning at home and abroad. Mr. James Russell Lowell delivered the oration, and Dr. Oliver Wendell Holmes read a poem. At its conclusion President Eliot conferred the degree of Doctor of Laws upon thirty-five persons who had been selected for this distinguished honor. The list included three eminent representatives of medicine, and their selection by the Harvard authorities will meet the cordial approval of the profession. They were presented to President Eliot for the conferring of the degree, in the following language:

"Joseph Leidy, anatomist, biologist, a leader and exemplar among American naturalists, professor of anatomy in the University of Pennsylvania.

"Silas Weir Mitchell, physician, physiologist, author.

"John Shaw Billings, surgeon in the United States Army, student and teacher of public medicine, medical bibliographer."

We learn that the West Virginia State Board of Health has determined hereafter to register the graduates of the Columbus (Ohio) Medical College on their diplomas, thereby revoking their former action. We are further informed that the graduates of this College are entitled to be thus registered in all States in which this procedure is required.

Dr. W. H. Draper will deliver the Anniversary Discourse before the New York Academy of Medicine next Thursday.

Dr. F. J. Shepherd, of Montreal, on Saturday week, removed by a lumbar incision a large calculus weighing nearly five ounces from the left kidney of a man aged twenty-six. No tumor was discoverable before the operation. At last accounts the patient was doing well. We hope to present a full report of the case at an early date.

The death of Dr. Julius F. Miner is announced at the age of sixty-three years. He was eminent in his profession, and ranked for many years as one of the ablest surgeons in Western New York. He was born in Peru, Mass., in 1823, was graduated at the Albany Medical School in 1847, and settled in Buffalo in 1855. He was for several years Professor of Special and Clinical Surgery in the Buffalo Medical College, and editor of the *Buffalo Medical and Surgical Journal.*

REVIEWS.

Practical Human Anatomy. By Faneuil D. Weisse, M.D. 8vo. pp. xii. 456, pl. 222. New York: Wm. Wood & Co., 1886.

The first thing that strikes one upon opening this volume is the large number and the excellent quality of the plates. They form half the work. They are partly lettered on each organ or tissue, a method first popularized in *Gray's Anatomy*, and partly by clear reference lines. The lettering is unusually well done, and it would be hard to excel in the delineation of superficial fascia in several of the plates, but especially in plate 6. There is hardly an error in the whole number, unless we cite one of omission—that no plate shows the hymen—an omission in which nature, however, has sometimes set us the example, and which the index follows.

The author's use of "section" as a verb is peculiar and indefensible, and his adoption of odd names such as "pollex eminence" and "minim eminence," for "thenar" and "hypothenar," has not only no advantage in clearness, but is positively confusing. We fear that some not over-bright students might think that "minim" had some pharmaceutical foundation. So too in describing the levator ani et prostatæ, he speaks of "the prostatæ portion," and "the ani portion."

The book, however, is good—thoroughly good—and we commend it most highly.

SOCIETY PROCEEDINGS.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, October 25, 1886.

The Vice-President, Charles K. Mills, M.D., in the Chair.

Dr. Morris J. Lewis read a paper on

A PARTIAL STUDY OF THE SEASONAL RELATIONS OF CHOREA AND RHEUMATISM.

(See page 541.)

Dr. Wharton Sinkler said that this paper was valuable and interesting because it showed the close relation between chorea and rheumatism which has been denied by some authors. For instance, Sturgis had 219 cases of chorea in the Hospital for Sick Children in London, of which number twenty per cent. also had rheumatism; but he did not attach much importance to this connection, because, as he stated, fifteen per cent. of all children have rheumatism. Other writers have expressed the same views. This paper seemed to prove the relationship between the storm centres and attacks of rheumatism and chorea.

Dr. G. E. de Schweinitz reported

EIGHT CASES OF TOBACCO-AMBLYOPIA, ONE COMPLICATED WITH DISEASE OF THE SPINAL CORD.

Since 1854, when Mackenzie showed that defective vision might be produced by tobacco smoking, and since, ten years later, when the subject was renewed and enlarged by the observations of Hutchinson, tobacco amblyopia has become one of the well-recognized facts of ophthalmological science. As is well known, pro-

gressive and usually equal failure of vision, unimproved by optical therapeutics; a feeling of wretchedness on the part of the patient; an ill-defined ophthalmoscopic picture; and a symmetrical, oval scotoma in the fields of vision, lying between the fixing point and the blind spot, and often including both, in which the perception of green and red is especially defective, constitute the marked symptoms of this affection.

Case I.—A. G., æt. forty-nine, a book-keeper, presented himself in the University Hospital, because his vision was failing and because of sleepless nights. He was a large, dark-haired man, with a restless, irritable disposition. Vision in the R. E. $\frac{20}{C}$, L. E. $\frac{20}{CL}$. Pupils about normal in size and reaction. Vision best in the early morning. Both optic nerves slightly hazy and gray in their deeper layers. The refraction H., but vision unimproved by the correcting glass. The fields of vision for white and red about normal. Between fixation—*i. e.*, the macula and the blind point, the optic nerve entrance—there was an oval, slightly sloping, relative scotoma, including both. In this area green appeared dirty white, and red could not be distinguished as such. For twenty years he had smoked excessively, averaging two pounds of Cavendish a month. He drank one pint of spirits a day. He was ordered to stop tobacco absolutely and to diminish his daily quantity of spirits. In a month his vision had improved to $\frac{20}{XXX}$ in each eye, and with his correcting glass he could read with fair ability.

Case II.—B. E., æt. fifty-three, laborer, came to the University Hospital for failing vision. He was a small, dark-skinned man, with fairly steady nerves. Vision, R. E. $\frac{20}{LXXX}$, L. E. $\frac{20}{L}$. Pupils normal in size and reaction. Vision worse in a bright light. Both optic nerves were gray-red, and the veins full and dark. The fields of vision showed no marked peripheral change, but perfectly characteristic oval scotomata were present. This man had smoked two pounds of "hard tobacco" a month for many years, and was accustomed to drink one quart of spirits a week. The usual order to stop tobacco was given. Sufficient time has not yet elapsed to prophesy how successful the case will be.

Case III.—J. M., æt. thirty-five, a mechanic, came to the University Hospital because of defective vision, headache, and great nervousness. He was a short, thick-set man, tremulous and despondent. Pupils exhibited no abnormalities. Vision, R. E. $\frac{20}{LXXX}$, L. E. $\frac{20}{C}$. The nasal edges of the optic nerves were hazy and the temporal sides gray; arteries rather small. The fields for white and red were not far from normal, those for red being slightly contracted. In the right eye from fixation and including it and passing outward there was an oval scotoma for red and green which reached to the blind spot, but did not embrace it. In the left eye a similar, rather more irregular scotoma. Up and out from the fixing point a small area of the scotoma was absolute. This man for fifteen years had smoked about six ounces of coarse tobacco a week, and occasionally cigars and cigarettes. He denied taking anything to drink, except a little beer or ale. In eight days his vision in right eye had become $\frac{20}{XXX}$, and in the left eye $\frac{20}{L}$. He then passed from observation.

Case IV.—Ida J., æt. twenty-seven, came to the University Hospital because of failing vision and great "nervousness." She was a finely formed brunette, of rather pallid countenance and excitable temperament. Vision in R. E. all of $\frac{20}{XL}$ some of $\frac{20}{XXX}$. The L. E. had been removed years ago for disease. Pupil responded freely to the change of light and shade and was about medium size. The optic nerve was pallid, edges clear, arteries rather small. The field of vision both for white and red was somewhat contracted and surrounding fixation in a band-like manner, but not extending to either side, there was a relative scotoma in which this color appeared "brownish" or rather "dull colored." The girl used no tobacco, but had worked for some years in a tobacco factory. On this account she was advised to get other employment and also to take one twenty-fourth of a grain of sulphate of strychnia three times a day. In two weeks the scotoma was no longer demonstrable and in about one month the vision had returned to normal and is now above normal.

Case V.—H. H., æt. fifty-eight, a shoemaker, came to the Dispensary of the University Hospital because his eyesight was so poor he could no longer see to do his work. He was a medium-sized man, with dark hair beginning to turn gray, tremulous and easily startled. Vision in the R. E. $\frac{20}{CC}$, the same in the L. E. The pupils were small and failed to respond to the changes of light and shade, although they contracted in the efforts of accommodation. The optic nerves showed a large, shallow excavation, widening of the scleral ring all around and were of a distinctly gray color. There were no changes in the central circulation. The fields of vision showed slight contraction for white, distinct limitation for colors and oval scotomata from fixation to blind spot, including both. The man smoked three ounces of tobacco weekly and drank whiskey, but not to excess. Further examination developed the fact that the patellar reflexes were absent, that with closed eyes the upright position was maintained with difficulty, and on attempting to walk the gait became staggering, if not positively ataxic, and that preceding the time of failing vision there was a history of diplopia. These symptoms, together with the state of the pupils rendered the presence of sclerosis in the posterior columns of the cord a fair inference. There was no history of syphilis. Examination of the urine revealed it normal. The patient was ordered to stop the use of tobacco and take iodide of potassium. Although two months have elapsed since he applied for treatment no improvement in his vision has taken place, nor have the scotomata changed or lessened.

Case VI.—W. H., æt. fifty-eight, a farmer, applied for treatment in the University Hospital, because of a "cloud" before his vision and inability to do even ordinary coarse eye-work. He was a well-preserved, large-framed man, with iron-gray hair and presented no noteworthy unsteadiness of the nervous system. Vision in the R. E. counts fingers at two feet, in the L.

E. $\frac{10}{cc.}$ The pupils were small, they responded to the changes of light and shade and also to the efforts of accommodation. Both optic nerves were small, surrounded by a halo, and their edges and the surrounding retina hazy. The disks were gray-red in color. In the neighborhood of each macula were slight patches of choroiditis. In the R. E. the field of vision for white was contracted, but not markedly so, and the fields for blue and red showed similar slight limitations. Between fixation and the blind spot, a large irregular scotoma for all colors. In the area surrounding the fixation, and for a small distance toward the blind spot, the loss of color was absolute, from there to blind spot relative. In the L. E. the field for white was limited above, and the fields for red and blue irregular and constricted. A similar scotoma, absolute near its centre, extended between fixation and blind spot and included both. This man smoked four to six cigars daily and drank "an occasional glass of whiskey." The patellar reflexes were prompt and greater on the right than the left side. His urine has as yet not been examined.

Cases VII. and VIII.—These cases occurred in private practice, and were both men over forty years of age, of active business habits, who complained of indistinct vision. In both the vision was not far from normal, viz., $\frac{15}{XX}$, and in both the eye-grounds presented no abnormal features. There were no true scotomata, only slight dimness of the perception of green and red between the macula and the optic nerve. These men were inveterate smokers. The difficulty of vision disappeared in one patient when he ceased using tobacco, the other declined to abandon his habit. While tobacco was evidently producing deleterious effects, these cases can scarcely be classified as true instances of tobacco amblyopia.

In three of the cases reported, the ophthalmoscopic examination revealed "hazy disks" either with or without full, dark retinal veins (Cases I., II., and III.); in two, if the last record be included in the list, there were no fundus changes (Cases VII. and VIII.). In one the optic nerve was pallid, the arteries rather small, perhaps the appearance of beginning atrophy (Case IV.), and in one the nerve showed evidences of gray atrophy (Case V.), while in another the appearances were those of a subsiding neuritis (Case VI.). Three of these cases are perfectly typical instances of tobacco amblyopia (Cases I., II., and III.); and two of them, if not characteristic cases, at least show the result of tobacco impression (Cases VII. and VIII.). Case IV. is an atypical one, inasmuch as the scotoma surrounded the fixation but did not include it or pass to either side, and, furthermore, is noteworthy because of the fact that the tobacco found its entrance into the system by absorption through the skin. This woman worked in tobacco, but did not use it. Case V. may be one of those rare instances in which a central scotoma appears with a spinal atrophy of the optic nerve, but inasmuch as the man used tobacco, although moderately, its influence cannot be excluded. An almost precisely similar case is recorded by Gowers (*Med. Ophthalmoscopy*, p. 111). In Case VI. it is doubtful if the use of tobacco produced the scotoma, although, as in the last instance, the patient was accustomed to its use, and hence its influence cannot be excluded. The whole subject of tobacco amblyopia has so often and so thoroughly been discussed, notably by Mr. Nettleship (*St. Thomas's Hospital Reports*, 1878), that it is useless to do more than report these cases and point out the features that are interesting.

Dr. B. Alex. Randall remarked that some ophthalmologists disbelieve in the existence of tobacco amblyopia. Very few cases have been put on record in which the influence of alcohol could be wholly excluded; but the combination of alcohol and tobacco is certainly a serious disturbing element in a number of cases. This affection is constantly coming under notice—occurring some eight or ten times in a thousand cases. While the scotoma is usually of an oval form, he had seen it distinctly annular (as in Case IV.) in a case typical in other respects.

It has recently been claimed that the absolute quantity of nicotine used does not bear that relation to amblyopia that we should infer, and that those who smoke the finest cigars are more liable to this affection than those who smoke the poorest and strongest.

Dr. Jas. Hendrie Lloyd asked if this affection were due to neuritis or to some disturbance of the intraocular circulation? The cases reported suggested an interesting analogy between tobacco amblyopia and peripheral neuritis, especially that form due to toxic agents. Is this a form of toxic neuritis of a special nerve?

Dr. J. Madison Taylor, referring to one of the cases reported, asked if it were not possible to have a powerful effect from the absorption of tobacco by the skin and lungs? In children working or living in tobacco shops, he had, in several instances, seen profound disturbance of the heart as the result of absorption.

Dr. Louis J. Lautenbach remarked that there had always been an element of doubt about these cases, and that of late this had become stronger. There are cases reported in which alcohol has been stopped, while the tobacco has been continued, and the patients have gotten well. Dr. Minor, of Memphis, reports eight such cases. In addition to the discontinuance of alcohol, he administered in these cases either iodide of potassium or strychnia. Nettleship, Foerster, and a few others, have succeeded in curing some of these amblyopia cases by the discontinuance of tobacco alone. About two years ago, at the Philadelphia Eye and Ear Dispensary, he had experimented in this matter, and had cured a number of cases by removing alcohol, allowing them to use tobacco, without the use of any medicines. The same treatment had resulted satisfactorily in two cases treated in private practice. One case was that of a professional base-ball player, who was in the habit of drinking thirty-five or more glasses of whiskey, and smoking from eighteen to twenty-five cigars a day. When examined, both eyes gave V.= $\frac{3}{LX}$?. The patient was directed to stop the use of strong liquors, but to keep on with his tobacco. In four days later V.= $\frac{3}{XXXV}$. Vision continued to improve, although no medicines were used.

The condition which causes this amblyopia may be a slight grade of retro-ocular neuritis, involving only the macula lutea fibres, which may be induced not only by tobacco but also by alcohol; lead occasioning it in some few cases. Depressed conditions of the system may probably cause it. This amblyopia with central scotoma,

is coming to be looked upon not as a special symptom of tobacco abuse, but rather as an indication of the depression of the general system which may be brought about by various poisons.

Dr. Wharton Sinkler referred to a paper published in one of the New York journals by Drs. Roosa and Ely, giving the results of the examination of a large number of workers in cigar factories, many of those examined smoking a great deal. Only a very small proportion of these cases was found to present any defect of vision or any disorder of the nerve. He asked if in the experience of other members they had found that a large proportion of nervous diseases were attributed to tobacco? He saw but few patients at his clinic at the Infirmary for Nervous Diseases with nervous disorders which could be directly attributed to the use of tobacco.

A point to be remembered in the consideration of this subject is that a person who takes alcohol will use more tobacco than one who does not. If he stops his alcohol he will take less tobacco.

Dr. Morris J. Lewis stated that in studying the subject of writer's cramp, he had found that in the majority of cases the use of tobacco increased the difficulty. A few out of forty-three cases said that it did no harm, and three said that it was of service.

Dr. Francis X. Dercum asked if those who used tea or coffee to excess, especially tea-tasters, presented symptoms analogous to those presumably caused by tobacco and alcohol?

Dr. B. Alex. Randall said that there were some cases in which alcohol *could* be entirely excluded in the causation of this affection. As to the pathology of the trouble, it is interesting to note that he knew of no case on record of true neuritis in the sense of anything like a choked disk, which had any apparent relation to tobacco abuse; although such cases are not rare in lead poisoning and other toxæmic conditions. In all cases of actual neuritis of the optic nerve, as in inflammation of other nerves, strychnia has to be carefully avoided in the acute stage. In most cases reported the use of strychnia had no injurious effect, and in fact caused, or was followed by, improvement. In some cases where strychnia has been given and the alcohol and tobacco both continued, recovery has taken place. The amount of poison required to produce a certain effect probably depends upon the constitution and condition of the patient. If the general condition is brought up a given amount of the poison no longer has the same effect.

Dr. Charles K. Mills, referring to the question of Dr. Sinkler, stated that his experience agreed with that of Dr. Sinkler, that nervous disorders are rarely attributable to the use of tobacco, although some cases of tremor and general nervousness, and a few other affections, undoubtedly originate in this way.

Dr. George E. de Schweinitz, in closing the discussion, said that he believed that in these cases there was an axial neuritis. He has had no experience with the poisonous effects of tea and coffee. Some of the cases reported had recovered, although the free use of spirits was continued. One of the patients continues to drink a pint of whiskey a day, and yet his vision has remained normal since the discontinuance of tobacco. The only way to reach a satisfactory explanation of this subject is to continue the experiments.

One object in presenting this series of cases was to call attention to the importance of a careful study of the field in nervous cases. If this were done more frequently, many interesting discoveries would probably be made.

Referring to the question of Dr. Taylor, he said that tobacco is freely absorbed through the skin, but inasmuch as it is rare to find scotomata under such circumtances he had reported the case.

Dr. Francis Dercum reported

A CASE OF UNUSUAL PARESIS OF THE FOREARMS.

(See page 543.)

Dr. Charles K. Mills referred to three cases which had been reported a few years ago, by Dr. Kerlin and himself. These cases were studied at the School for Feeble-minded Children at Elwyn. The patients were brothers, and in them was a marked combination of pseudo-hypertrophy and muscular atrophy. One of the boys who has since died, presented in the calves the typical appearance of pseudo-hypertrophy and also in one or two other isolated portions of the body. In the back, however, were all the distinctive signs of progressive muscular atrophy. In the second case the changes were principally those of progressive muscular atrophy. In the third there was a combination of the two conditions. Why in one case we get the pseudo-hypertrophic form, and in another the atrophic form, he was not prepared to say. He believed that in all cases there are cord and nerve lesions, but he did not know which of these was primary. In the treatment of such cases, that pursued in the present instance would seem to offer the most hope. He was in the habit of putting these cases on strychnia, iron, cod-liver oil, and similar tonic and nutrient remedies. He had never seen much benefit from local treatment, but if myositis was present he thought it worthy of a trial.

Dr. James Hendrie Lloyd said, with reference to the age at which this affection may develop, that he had recently seen a case in which a married woman, thirty years of age, who had been under treatment on several occasions without a positive diagnosis having been made, returned after an interval of four months with hypertrophy of the muscles of the calf, lordosis, and other characteristics of pseudo-muscular hypertrophy. This was the first case which he had seen in which the disease had apparently occurred as a primary disease in an adult with no hereditary tendency.

Dr. William Osler remarked that some observations had been made by an English physician with reference to the atrophy which follows great use of the muscles. After examining the microscopic specimens, he agreed with Dr. Dercum in regard to the condition present in this case. There is no essential difference between the atrophic and the pseudo-hypertrophic form of the disease, and both may be present in the same case.

Dr. William Osler exhibited the following specimens:

PACHYMENINGITIS.

J. K., was admitted to the drunkards' ward of the Philadelphia Hospital, on August 26th, with delirium tremens, and died September 4th. I did not see him

during life, but from the account given by the Resident Physician, he appears to have had an ordinary attack of delirium tremens without any paralysis, local or general. He was not in a condition to give a satisfactory account of himself. Death took place from exhaustion. The post-mortem showed an extensive pachymeningitis of the right half of the dura mater. The specimen presents layers of exudation two lines in thickness over the central portion of the dura, gradually becoming thinner toward the tentorium or the orbital surface. In these regions there was a delicate uniform sheeting on the dura mater and no hemorrhage had as yet taken place; but on examination with a low power lens there could readily be seen a plexus of wide vessels. In the central part there were several layers of altered blood, alternating with colorless firmer exudation. The surface of the pia mater of this hemisphere was a little stained, but there had evidently not been any pressure upon the convolutions. There were no other lesions.

PHTHISIS; TUBERCULAR MENINGITIS; APHASIA.

J. McD., æt thirty-six, laborer, was admitted to the Philadelphia Hospital, June 5th, with phthisis. There was nothing special in his family history; five of his brothers and sisters had died from causes unknown to him. He had been ill for over eighteen months with cough, fever, chills, and sweats. Had brought up blood and had had severe diarrhœa. When I saw him first, on September 4th, there were signs of extensive disease in both lungs. Ten days before, he had two convulsions, after which he had some difficulty in talking. On the 4th he looked bright and intelligent, the pupils were dilated and there was no paralysis. Expressed himself with difficulty; when asked his name, said *Joseph Mac*, but could not say the *Donald*. After several attempts and a good deal of worry, he did so, and seemed much pleased. Some words he said clearly, others he could not. Thus he could read the letters of the word *shaken*, but could not pronounce it. He was delirious at times during the next two weeks, and one night he got from the ward on the fire-escape. The aphasic condition improved somewhat. The eye-grounds were examined twice, with negative results. At the time of my visit on September 10th, he had an epileptic seizure, strong spasm of respiratory muscles, and great lividity. Tonic spasms of arms gradually relaxing and becoming choreic. Facial muscles in violent action; face drawn to the left, eyes to the right (strongly) and upward. He became unconscious the next day and died on the 14th. The autopsy showed extensive disease of the lungs. The brain was large; at the base the membrane was thickened and infiltrated and tubercles existed along the vessels. On exposing the Sylvian fissures, the pia on the left side covering the insula was very thick and studded with tubercles the size of a pin's head. The process was most advanced upon the three or four posterior gyri of the insula. The gray matter was reddened and soft. The third left frontal convolution was not specially involved; there were a few isolated tubercles on the pia, but the membrane was not thickened. In the right Sylvian fissure there were tubercles scattered along the vessels, and the arteries of the anterior perforated spaces presented many bead-like and oval swellings. The ventricles were dilated and their walls softened.

EMBOLISM OF RIGHT MIDDLE CEREBRAL ARTERY; CHRONIC NEPHRITIS.

J. W., laborer, aged forty-nine, was admitted to the Philadelphia Hospital, Oct. 7, 1886. No special history could be obtained, as he was very dull and heavy. When I saw him on the 9th he was apathetic, answered questions with difficulty. The face was anæmic, and he had a decidedly renal look. The pulse was slow and hard, sixty to the minute. No increased heart dulness, possibly a murmur at apex, but it was not at all distinct, and at base very ringing. Albumen and hyaline casts were present in the urine. The case was regarded as one of chronic interstitial nephritis.

On the morning of the 12th he had a hemiplegic attack. I found him at 1 o'clock P.M., comatose, with puffing respiration and complete left hemiplegia, including face. Right pupil larger than the left. He died during the night.

The autopsy showed cirrhotic kidneys, slight atheroma in large vessels, moderate hypertrophy of left ventricle. The mitral valve presented recent vegetations, three in number, on the auricular face of segments, freely movable, and on the posterior flap a flattened area looking as if eroded. The right hemisphere of the brain looked fuller than the left, and the vessels were not so full, particularly in the central region. The vessels of the circle of Willis were denuded *in situ*, and the right middle cerebral just beyond the first two branches (temporal) was found plugged with the firm embolism here shown. It was very evident before opening the vessel, as it showed grayish-white throughout the coat, while on either side of it were dark clots, and the branches beyond it were very small. The embolus was firmly adherent, and had a small pale clot on its proximal, and a firm dark one on its distal side. Examination showed it to be an endocardial vegetation, and it doubtless came from the rough spot on the posterior segment. The convolutions of the central portions of the hemisphere were swollen, and œdematous, particularly the gray matter, and softer. There was a light gray yellow tint, but there had not been time for much change. The right anterior cerebral was greatly enlarged, three times as big as the left, doubtless a compensatory process.

Dr. Charles K. Mills remarked that cases of pachymeningitis hemorrhagica were somewhat common in the Philadelphia Hospital. He had met with a comparatively large number of cases in making autopsies in that institution. A form of hemiplegia met with in the wards of this hospital, is undoubtedly due to pachymeningitis hemorrhagica. These cases make partial recoveries, and then again break down, and at the autopsy is found the condition exhibited to-night. He had reported one case five years ago, with a number of other cases, in the English journal *Brain*. This condition is sometimes mistaken for embolism, hemorrhage, or some other form of disease producing hemiplegia. In some of the cases he had seen there had been distinct naked-eye flattening of the convolutions of the motor region, which he supposed accounted for this peculiar, variable form of hemiplegia.

Adjourned.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, October 22, 1886.

The President, James C. Cameron, M.D., in the Chair.

SUBMUCOUS INJECTION OF LACTIC ACID FOR THE CURE OF THE EARLY STAGE OF LARYNGEAL PHTHISIS.

Dr. George W. Major, in a short paper, related his experience of lactic acid as a local application in the ulcerative stage of laryngeal phthisis. He said that it was probably the most speedy and most efficacious plan of treatment yet introduced. Ulcerations healed under it most kindly, and tuberculous deposits underwent absorption more rapidly than by any other means. But it was of lactic acid employed as a submucous injection into the substance of the laryngeal tissues that he wished to speak. In the early swellings and œdemata it had rendered very remarkable results in Dr. Krause's (Berlin) hands. Dr. Major had the privilege, during the past summer, of seeing many of Dr. Krause's cases and he was happy to be able to endorse all that had been maintained by Dr. Theodore Herring, of Warsaw, and Dr. Krause in its favor when used as an injection. Dr. Major employed a twenty to thirty per cent. solution of the remedy, and inserted at one sitting from fifteen to twenty minims of the liquid. Very trifling pain followed, and but little after-irritation was induced. The swellings disappeared in periods varying from twenty to thirty days and ulcerative changes were avoided. A case undergoing treatment by injection was exhibited to the members of the Society, and the result was deemed very satisfactory and encouraging. Dr. Herring's syringe, as modified by Krause, was the instrument employed for the injections. Altogether, Dr. Major regarded the lactic acid treatment of laryngeal tuberculosis as the greatest advance yet made in the treatment of this disease and looked forward to a great future for it.

Dr. R. J. B. Howard said that he had listened with interest to Dr. Major's paper and was delighted to know that such a distressing disease as laryngeal phthisis could be so successfully treated by such simple means. He had seen several cases of this affection lately, and improvement had followed treatment by application of solutions of nitrate of silver and other means. He would like to ask Dr. Major whether the frequent puncturing of the laryngeal structures would not cause inflammation of those parts.

Dr. F. W. Campbell said that it was important, whilst treating such a disease as tuberculosis locally, not to omit general constitutional remedies, such as cod-liver oil, hypophosphites, etc.

Dr. George Ross was glad to hear of a successful method of treating that most painful affection, laryngeal phthisis. He, however, thought that the cases in which tubercle is first deposited in the throat are extremely rare, and although apparently in many cases the disease first appears there, yet it turns out afterward that the lungs themselves were involved also. In cases of tuberculous disease of joints and glands, the removal of the disease from these centres is most beneficial, and so, also, would this benefit be great if the disease localized in the larynx could be removed. In the treatment and cure of tuberculous laryngitis in the early stage by any remedy, there is always an element of doubt as to the diagnosis, and many cases might be recorded as cures which were never affected with tuberculous disease at all. However, he considers that great benefit is conferred by improving the condition of the larynx, even though the ultimate result of the cases is unfavorable.

Dr. Cameron asked whether there was any tendency to relapse in the cases cured by lactic acid.

Dr. Major, in reply, stated that no inflammatory action followed the punctures; also that no relapses, as a rule, occur in cases of laryngeal phthisis. He did not think that tuberculous disease often occurs primarily in the larynx. The advantage of this method of treatment is that the case can be treated before ulceration takes place.

TUMOR OF THE OPTIC NERVE.

Dr. Buller exhibited a tumor of the optic nerve removed from the orbit of an otherwise healthy female child aged seven years. He also showed a photograph representing the appearance of the child before operation. There was considerable prolapse in a forward and slightly downward direction. The protrusion of the eyeball had commenced to be noticeable about six months previously, and had gradually increased without pain or signs of inflammatory action. The movements of the eyeball were only slightly impaired, but the eye was totally blind. The blindness had been discovered by a physician who had examined the eye some two months previously. There was a high degree of papillitis (choked disk), but no other ophthalmoscopic changes. These facts seemed to warrant a diagnosis of tumor of the optic nerve, and an attempt was made to remove the growth without removal of the eyeball, but during the progress of the operation it was found that the enlargement of the nerve extended quite to the optic foramen, and in order to guard, as far as possible, against a recurrence of the growth, Dr. Buller thought it expedient to remove the eyeball and apply chloride of zinc to the apex of the orbit. The patient made a good recovery from the operation, and returned to her home ten days after. A few days ago (six months after the operation) she was reported to be in excellent health, with as yet no signs of recurrence of the growth. The microscopic examination of the tumor showed it to be a round-celled sarcoma—possibly a glioma.

ANEURISM OF THE AORTA.

Dr. M C. McGannon, of Brookville, Ont., exhibited a specimen of aneurism of the aorta removed from a patient aged forty-eight, who had died from pneumonia, induced by pressure of the aneurismal tumor on left bronchus. At first, patient never suffered from severe pain, the only symptom pertaining to aneurism being an irritating cough; there was no dulness or percussion or bruit.

Some time before death, however, the patient had intense pain in the back, and pulsation became visible on the right side of the sternum. After death, the left lung was found to be consolidated, right lung normal.

Dr. Gardner exhibited the following specimens obtained during the previous ten days.

1. SUBMUCOUS MYOMA.

Removed by enucleation; the patient, a lady of forty-

five years, the mother of several children, the last born five years ago, had suffered from internal hemorrhage ever since. After dilatation by Tait's dilators, the capsule of the tumor was slit with a bistoury, the tumor grasped with vulsellum forceps, separated by the finger, and dragged from its bed. The shreds of the capsule were next clipped off, the uterine cavity well douched with hot water, and Churchill's solution of iodine freely applied. No drainage or irrigation was practised. The patient made an easy and rapid recovery.

2. CYST OF THE LEFT LABIUM.

Tumor had been five years growing, and was the size of a hen's egg; it was easily enucleated.

3. EXTIRPATION OF THE UTERUS BY THE VAGINAL METHOD.

The vagina was incised all around the cervix, the bases of both broad ligaments ligatured in sections, the Douglas pouch opened, and the bladder separated; the remaining portions of the broad ligaments were then clamped with Ferrier's forceps devised for the purpose, after which the uterus was completely extirpated. A few bleeding points required ligature. The operation was completed by placing a T-drainage tube on the Douglas fossa. The clamps were removed at the end of three days, and the drainage tube a day later. The patient recovered without a bad symptom.

4. TWO CASES OF MULTILOCULAR OVARIAN CYSTOMA.

In the first case the patient was aged sixty-eight; the operation was a simple one, and there were never any adverse symptoms referable to the operation, but forty-eight hours after she developed pleurisy of the right side, which extended to the left two days later. The pulse reached as high as 175. After four or five days the serious symptoms abated, and rapid convalescence took place.

In the second case, that of a young lady aged twenty-two, there were no adhesions, but some troublesome bleeding took place from a rent in the broad ligament; slight oozing continued after application of a continuous silk suture and a drainage tube was used for forty hours. The left ovary was as large as a hen's egg and was cystic. It was also removed. Patient did well. Dr. Gardner remarked, with reference to Schröder's practice of saving a portion of the ovary in such cases when the condition seemed to justify it, that while on a visit to Berlin, during the past summer, he was told, on inquiry, that the professor had discontinued the practice.

Dr. Trenholme said that during the past summer he had twice extirpated the uterus. In these cases he first opened Douglas's fossa and then ligated and separated the uterus from the bladder with the finger, although at the time of operation the disease was confined to the cervix; in both cases it has recurred after four months. He is not now in favor of removing the uterus for cancerous ovaries, and thinks that on account of the large amount of lymphatics in the neighborhood, recurrence is almost always certain to take place.

Dr. Kennedy agreed with Dr. Trenholme in thinking that the number of lymphatics in the broad ligament gave slight hopes of radical cure of the disease after extirpation. He thought that the use of Terrier's forceps would greatly simplify the operation.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting November 4, 1886.

The President, A. Jacobi, M.D., in the Chair.

THE ERNST KRACKOWIZER PRIZE.

The President, as Chairman of the Committee appointed by the Council in reference to the Ernst Krackowizer Prize Fund, the accumulated interest of which is to be devoted every third year to an award for an essay, the standard and merit of which are to be determined by a committee composed of the Presidents of the New York Academy of Medicine, of the Bellevue Hospital Medical College, of the Medical Department of the University of the City of New York, and of the College of Physicians and Surgeons (unless the Academy should direct otherwise), announced that the first subject selected by the committee was "New Observations on Osteomyelitis," and that all competing essays should be sent in on or before the first day of January, 1889.

Dr. Wm. Gilman Thompson read a paper on

THE MOVEMENTS OF THE HEART AND INTESTINES ILLUSTRATED BY PHOTOGRAPHY.

He said that several years ago he had been much interested in reading the account of a series of photographs of the horse, taken while the animal was in motion, and that this had suggested to him the practicability of securing similar views of the movements of the heart under various conditions. Carrying this suggestion out, he had been enabled to take photographs of normal hearts in full systole and full diastole, and also as affected by various stimuli, such as heat, and different drugs.

In his early experiments he employed an ordinary camera; but more recently he had devised a form of apparatus which rendered the work much easier as well as more accurate. The difficulty about the ordinary camera was that only one view could be taken at a time, and then the plate had to be changed. By the aid of his improved apparatus, however, he was able to take no less than six successive views on the same plate, in the space of one second, a feat in photography which had never before been achieved. The problem was to revolve the plate, which was circular, and stop it six times in the second, each time exposing one-sixth of the surface, and this he had succeeded in accomplishing by means of an arrangement of cog-wheels turned by a handle. Each image was clear and distinct, without any blurring. The animal of which the heart was to be photographed was anæsthetized, and an incision having been made in the median line, the heart was exposed, and a collar of celluloid slipped behind it in order to secure a light background, which was a matter of no little importance. The light used was strong sunlight, and the animals experimented on were cats, kittens, rabbits, rats, frogs, and pigeons.

The results were very interesting, and the movements, changes of form, and pulsations of the heart were distinctly shown. The shape of the apex was found to be greatly affected by different drugs, and of the various stimuli employed, heat was found to produce the strongest systole. Of the chemicals tried, glonoin, either painted over the surface or used hypodermatically, was also very active in producing a similar effect; while chloral caused marked diastolic distention.

In photographing the movements of the intestines the same methods were employed. He had been able to demonstrate positively that two peristaltic waves sometimes occurred, moving simultaneously in opposite directions; although the preponderance of motion was toward the anus.

In summing up his observations, Dr. Thompson alluded to the accuracy of the photographic method he had devised, the rapidity and ease with which data for scientific conclusions could be accumulated, and the facility with which the action of various cardiac and intestinal stimuli could be illustrated before classes of students.

In regard to the movements and form of the heart he said: (1) The long diameter may or may not shorten in systole; but it usually shortens from one-fifth to one-thirteenth.

(2) The transverse diameter usually shortens at least one-fourth.

(3) The apex does not in all cases cause the impulse-beat; and this very frequently is produced by the hardened anterior wall of the heart pressing against the thoracic walls. The form of the apex varies greatly under the influence of different drugs.

(4) The contractile power of the right ventricle may outlast that of the left, and pathologically the two ventricles may contract independently.

(5) The lumena of the ventricular cavities are capable of being entirely occluded by the circular fibres acting independently of the longitudinal and transverse; thereby demonstrating the immense reserve contractile power in all the cardiac fibres.

Dr. W. Gill Wylie read a paper on

TWO OPERATIONS FOR INTESTINAL OBSTRUCTIONS.

He said that out of the sixty-seven laparotomies which he had performed since June, 1885, six were not gynecological. In only two of these, however, was the diagnosis made before the operation. In order to make the list complete, he gave a *résumé* of all the six cases.

Complete intestinal obstruction. The first was that of a female patient, fifty years of age, who had had three children and one miscarriage. Her last pregnancy was twenty years ago, and the menopause occurred four years ago. She had a uterine fibroid, and after the passage of the sound on one occasion an attack of peritonitis was set up. Afterward she had great trouble in getting her bowels moved. Previous to the 7th of October last she suffered from colicky pains and distention of the abdomen. On that day she had much more severe pain, and suffered greatly from vomiting. In order to relieve the pain, large quantities of morphia were required. Ox-gall enemata and other means entirely failed in causing an evacuation of the bowels. Dr. Wylie saw the patient in consultation with Drs. F. N. Otis and Ward, and it was agreed that if a movement could not be secured laparotomy should be resorted to. The pulse and temperature were nearly normal, and the matter vomited was not stercoraceous. The patient was found to be very listless, but this could not be attributed to the opiates which she had been taking, since the pupils were not contracted.

On the 10th of October he operated. A short incision was made in the median line, and a number of small peritoneal cysts were discovered. A large uterine fibroid was found, and on one side of it was a mass of intestines closely matted together. The incision was then extended, and a large part of the intestines turned out of the abdominal cavity, when the cause of the obstruction at once became apparent. A loop of the ileum was found to be firmly bound down by a strong band of adhesions; and the obstruction thus caused was so complete that the intestines in the vicinity had turned black, and the lumen of the canal was destroyed. This firm band was cut, and the lumen was at once restored. The fibroid involved not only the uterus, but both broad ligaments; but as the patient had passed the menopause, it had already begun to atrophy, and it was not disturbed. The wound was closed in the usual way, and ten hours after the operation she had a copious liquid stool. The temperature never rose above 101°, and the patient did perfectly well. Now, at the end of three weeks, her bowels move more freely than they have for ten years past.

A point of interest in connection with this case was the normal temperature and pulse, notwithstanding the presence of such a grave local condition, and Dr. Wylie said that he was convinced that many cases of laparotomy are followed by intestinal obstruction, which is generally mistaken for peritonitis. Until very lately it had been the universal practice to keep the bowels confined for five or six days after laparotomy, notwithstanding the presence of tympanites and vomiting. He would not go so far as the laparotomist who said that a brisk purge was the best treatment for peritonitis; but he felt sure that a turpentine or ox-gall enema was often of great service after abdominal section. He had adopted the plan of always opening the bowels after the first twenty-four hours, if there were any indications for it; and in all cases he did this at the end of three days, at all events.

Partial intestinal obstruction. The second case was that of a widow, twenty-five years of age, who was admitted to Bellevue Hospital in June, 1885. She was sent in as a "tumor case." There was a swelling in the left side of the abdomen, and the bowels were obstinately constipated. The uterus was firmly bound down by adhesions; but no very accurate diagnosis could be made on account of the distention of the abdomen. On the 28th of June an abdominal incision was made, when it was found that there were extensive peritoneal adhesions, with partial intestinal obstruction. The glands were found to be greatly enlarged, and this was attributed either to syphilis or to malignant disease. In the other cases which he had had, the obstruction was due simply to pressure from a tumor or adhesion due to the same cause.

Laparotomy for peritonitis. The third case was one of laparotomy for peritonitis. The patient was a negro, who was admitted to the Bellevue Hospital August 24, 1885. Two weeks before, he had had an attack of severe pain, and noticed that his abdomen was enlarged. He afterward had a number of chills, followed by high fever. After his admission the temperature was 103°, and the abdominal wall in the vicinity of the crest of the ilium, was found to be indurated over a space of several inches. He made the diagnosis of suppurative peritonitis, and prepared to perform laparotomy; but Drs. Janeway and L. H. Stimson, who saw the case in consultation, did not think the operation called for. After-

ward, however, the late Dr. T. H. McBride saw the patient, and agreed with Dr. Wylie, that laparotomy should be performed. Accordingly he did the operation. A cavity was found which contained ten ounces of pus, and the intestines were matted together. The cavity was kept well washed out for several days, and the patient made a good recovery.

Exploratory laparotomy. The other three cases were admitted to the hospital as "tumor cases." In the first he made an exploratory incision, and found tubercular peritonitis present. The patient was a married woman, thirty years of age, who had had five children and one miscarriage. There was a small tumor in the left inguinal region, and he operated April 12, 1886. Two quarts of yellowish and comparatively clear fluid were evacuated, and he then found a semi-solid mass. There were also many grayish-white nodules; the tubercular deposit involving both the intestines and mesentery. Drainage was kept up as long as any fluid came away, and the operation was followed by very marked relief in the patient's sufferings. A sinus was finally established in the site of the wound, and ulceration followed. She died about the middle of July.

The fourth case was also one of tubercular peritonitis. The patient was a female, fifty-four years of age, who had had five children; and an exploratory incision was made in the same way.

The sixth, last case, was that of a patient twenty-five years of age, admitted to Bellevue Hospital October 22d. The abdomen was distended with fluid, and there was some jaundice. On October 23d an incision was made in the median line, and a trocar inserted into the peritoneal cavity; when three gallons of fluid were withdrawn. The nodulated condition of the liver then found showed that there was cancer of that organ.

In Germany, Dr. Wylie said that permanent drainage had recently been resorted to in cases of tubercular peritonitis, and in the two cases related in which he had tried it, the relief afforded the patients had been very great. He stated that in a large number of cases of abdominal dropsy exploratory laparotomy was far less dangerous than tapping, and he contended that laparotomists in this country will never succeed in obtaining as good results as European operators so long as the mischievous practice of tapping continues in vogue. Patients with ovarian tumors, on account of the temporary relief afforded them by tapping, are very apt to delay applying to competent operators for their removal until a stage of exhaustion is reached which leaves but a meagre chance of recovery.

NEWS ITEMS.

Inter-State Notification in Infectious and Contagious Diseases.—The following resolutions, presented by the National Conference of State Boards of Health, were adopted by the American Public Health Association at Toronto, October 8, 1886:

Whereas, It is necessary for the protection and preservation of the public health that prompt information should be given of the existence of cholera, yellow fever, and smallpox; be it

Resolved, That it is the sense of the National Conference of State Boards of Health that it is the duty of each State, provincial, and local board of health, in any locality in which said diseases may at any time occur, to furnish immediately information of the existence of such disease to boards of health of neighboring and provincial States, and to the local boards in such States as have no State board.

Resolved, That upon rumor or report of the existence of pestilential disease, and positive definite information thereon not being obtainable from the proper health authorities, this Conference recommends that the health officials of one State shall be privileged and justified to go into another State, for the purpose of investigating and establishing the truth or falsity of such reports.

Resolved, That, whenever practicable, the investigations made under the preceding section shall be done with the coöperation of the State or local health authorities.

Resolved, That any case which presents symptoms seriously suspicious of one of the aforenamed diseases, shall be treated as suspicious, and reported as provided for in cases announced as actual.

Resolved, That any case respecting which reputable and experienced physicians disagree as to whether the disease is or is not pestilential, shall be reported as suspicious.

Resolved, That any case respecting which efforts are made to conceal its existence, full history, and true nature, shall be deemed suspicious and so acted upon.

Resolved, That in accordance with the provisions of the foregoing resolutions, the Boards of Health of the United States and Canada represented at this conference, do pledge themselves to an interchange of information as herein provided.

Salicylated Beer.—The custom of employing salicylic acid to prevent deterioration of beer is the subject of active discussion in French journals. The quantity of the acid employed is by no means inappreciable. It is computed that the salicylated beer of Paris contains more than 20 centigrammes per litre, so that a considerable quantity is taken by a thirsty beer consumer. A contemporary commenting upon this fact, says: There are grounds for believing that the rate of elimination of the antiseptic drug is by no means rapid, and any congestion of the kidney or liver would certainly retard its excretion in great degree. Again, we are not sure, even supposing that the substance were excreted completely, that constantly having the tissues bathed by a weak solution of salicylic acid would be unattended with danger. Salicylic acid is a member of a dangerous group of chemical bodies, the best known of which, carbolic acid, is a most rapid and fatal poison.

The Length of a Step.—Dr. Gilles de la Tourette has recently published a monograph upon normal locomotion and the variations in the gait caused by diseases of the nervous system. He found, from a comparison of a large number of cases, that the average length of a pace is, for men, 25 inches, for women 20 inches. The step with the right foot is somewhat longer than that with the left. The feet are separated laterally in walking about 4½ inches in men, and about 5 inches in women. The ataxic gait is characterized by an actual shortening of the pace coinciding with an apparent lengthening, and by a considerable increase in the lateral separation of the feet.

Criterion of Intoxication.—Dr. T. E. Wright has carefully investigated the question: "When is a man drunk?" and decides as follows: "When consciousness becomes modified, in any degree whatever, through the influence of alcohol, and when, or as long as no exercise of independent nervous force is adequate to restore it to a normal state, the man so affected is drunk."

Cardiac Lymphatic Gland.—Dr. E. Baisrtrocchi has demonstrated the existence of a lymphatic gland of the heart. The gland is situated where the fold at the beginning of the aorta touches the pulmonary artery. He finds the gland to be constant in many of the lower animals and has observed it five times in the human subject.

Homœopathy in the United States.—It is stated that, in the United States, there are more than 10,000 homœopathic practitioners, and that there are fourteen colleges for educating students in homœopathy. The homœopaths set forth their views in 143 societies and twenty journals, and give their valuable services to the public at fifty-one hospitals and forty-eight dispensaries. Our usually well-informed contemporary, the *New York Medical Record*, appears to accept these figures as at least approximately correct, though at the same time it expresses the belief that Americans are outgrowing their curious love for this worn-out theory.—*British Medical Journal*, Oct. 23, 1886.

A New Hybrid.—Before the St. Louis Medical Society Dr. Funkhouser exhibited a specimen of an embryo five days old, the result of the union of a rooster and a duck. This was the only fertile specimen of sixteen such eggs hatched in an incubator. The doctor thought his experiment tended to upset prevailing ideas about species, general orders, and classes. All sources of error with regard to the roosters and ducks had been carefully avoided. He regarded it as an extraordinary event that a member of the order of swimmers, being crossed with the order of scratchers, should have produced a living result, thus jumping over not only species, but also further. The duck and the rooster are of the same class, but belong to different orders.

Diphtheria and Pigeon-keeping.—At a recent meeting of the Anatomical and Pathological Society of Brussels, M. Destrée called the attention of the members to the fact that cases of croup had been greatly and steadily on the increase in Brussels, so that croup and diphtheria were now endemic there; and he ventured to suggest that there might be some connection between the keeping of pigeons and the occurrence of these diseases. He pointed out that Emmeriels, of Munich, had found the microbe of diphtheria in these birds, and he himself had met with three cases of croup in families where pigeons were kept, in all of which cases signs of the disease had appeared in the pigeons. M. Destrée hoped that members would bear this matter in mind, in order that it might be further elucidated.

Venereal Infection pronounced a Crime.—Some consternation may be caused among a certain class by a recent judgment of Justice Wills, of the Central Criminal Court, England. The charge against the prisoner was on two counts, one with having had carnal knowledge of an imbecile woman, aged eighteen, and another, under 24 and 25 Vict., c. 100, s. 47, for a "fraudulent assault" upon the same woman, occasioning her actual bodily harm. The harm done was the wilful infection with syphilis. The prisoner was found guilty on both heads, and sentenced to two years' imprisonment for the first, and five years for the second. The more remarkable piece of information is that a man who has immoral sexual connection with a woman, knowing himself to be suffering at the time from gonorrhœa or syphilis, is liable to prosecution and penal servitude.

Female Drug Clerks in Holland.—In Holland ladies are gradually usurping the occupations of the pharmaceutical assistants. Out of a total of 55 candidates, 19 out of 31 females, and only 8 out of 24 male candidates were successful, in the recent State examination.

The Disinfection of Books.—The health authorities of Aberdeen have ordered that all books taken from the public library, which are known to have been in the hands of those suffering from any contagious disease, must be sent to a disinfecting establishment before being returned to the shelves. The librarian is provided with a list of the families in the town where there any cases of contagious disease.

Absence of Ill Results from Consanguineous Marriages in Japan.—An interesting contribution to the study of consanguineous marriages occurs in the paper of Dr. Baelz on the Japanese, in the *Sei-I-Kwai*. He says: "Near the bathing resort, Atami, there is situated a small island named Hatsushima. The inhabitants of that island, nearly three hundred in number, have for more than two hundred years exclusively married amongst themselves; strange blood has never entered the island. Those people live by fishing, and from the proceeds of a small trade with the neighboring coast. They are physically and mentally quite normally developed, and their statistics show a larger number of births, and a smaller number of deaths in proportion than any other part of the Japanese empire."

The Action of Water on Lead.—Prof. Crookes and Drs. Odling and C. Meymott Tidy contributed a valuable paper on "The Action of Water on Lead" to the proceedings of the recent meeting of the British Association. They find that the action of a soft water on lead pipes does not depend upon its degree of softness, but to the amount of silica it contains. When the silica was as low as 0.3 grain per gallon, the water dissolved the lead; but where it was more than 0.5 grain, the water had no solvent action on the lead pipes. It is therefore recommended that the water should be filtered at the works, and that where necessary the filter-beds be so modified as to insure the silication of the water. They are inclined to the belief that when the amount of lead in the water does not exceed 0.05 grain per gallon, it will not produce any hurtful effect.

A New Diagnostic Sign of Imbecility.—Dr. Giné, of Barcelona, has published in the *Independencia Medica* an article on what he terms "phrenopathic uranostomatoscopy," and in which he maintains that

all congenital mental deficiencies are accompanied by a depression of greater or less profundity in the centre of the palatine vault; and further, that this depression is in direct and constant proportion to the degree of mental deficiency. It is, for instance, comparatively small in simple dulness or retardation of the faculties, deeper and more marked in imbeciles, and deepest and largest in idiots. He therefore suggests the exploration of the palatine arch as a method of diagnosis in such cases.

Fluorine.—The element fluorine, which has heretofore defied all efforts to isolate it from its compounds, has at last been produced by a French chemist, M. Moissan. It was obtained by decomposing, by an electric current from twenty Bunsen cells, a quantity of anhydrous hydrofluoric acid contained in a platinum U-tube, at a temperature of —23° C. Hydrogen gas was given off at the negative pole, and was readily recognized; while the other arm of the tube became filled with gas which was undoubtedly pure fluorine, as the results of an analysis show that it contains no hydrogen. As might have been anticipated, fluorine is extremely active, violently attacking organic substances, and uniting with various elements to form fluorides. Water is decomposed by it into ozone and hydrofluoric acid. M. Moissan was at work upon the problem for nearly a year before his efforts were rewarded by this brilliant discovery.

Obituary.—Dr. W. D. Stewart, late Acting Assistant Surgeon U. S. Marine-Hospital Service, died on October 31, 1886, at Vineyard Haven, Mass., of chronic intestinal catarrh, which he had contracted during his service in the late war, and from which he never entirely recovered.

Dr. Stewart was born in Trimble County, Kentucky, in 1820. He was a graduate of the University of Louisville, of the class of 1846, at the time when the late Professor S. D. Gross occupied the Chair of Surgery, and was under the preceptorship of that distinguished teacher. He was also a graduate of the University of the City of New York. After the completion of his medical course, he commenced the successful practice of his profession at Fort Wayne, Indiana, where he remained until the beginning of the War of the Rebellion. Proceeding to Washington, he obtained the position of Brigade Surgeon of Volunteers, August 3, 1861, with the rank of Major, and was assigned to duty on the Military Governor's Staff at Washington, D. C. At the close of the war he was mustered out of service, and for honorable, meritorious services was brevetted Lieutenant-Colonel.

In the year 1869, he was appointed Inspector of U. S. Marine Hospitals, and was later associated, in this capacity, with Surgeon John S. Billings, U. S. Army, by whom he was afterward succeeded. He was then selected as Medical Sanitary Inspector of the Board of Health of the District of Columbia, which position he retained for six years. After the severance of his connection from the Board of Health, he accepted the appointment of Assistant Surgeon, Marine Hospital Service, and was ordered to duty at Vineyard Haven, Mass.

He was a man of fine physique, affable in manner, and entertaining in conversation, and his death will be lamented by a large circle of friends to whom he had endeared himself by his honor, integrity, and cheerful deportment. His body will be temporarily interred at Vineyard Haven.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 6, 1886.

Neilson, J. L., *Surgeon U. S. N.*—Ordered to receiving ship "New Hampshire."

Drennan, M. C., *Surgeon U. S. N.*—Detached from receiving ship "New Hampshire" and granted one year's leave.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 2 TO NOVEMBER 8, 1886.

Clements, B. A., *Major and Surgeon.*—Died November 1, 1886, at Fort Leavenworth, Kansas.

Wright, J. P., *Major and Surgeon.*—From the Department of Texas to the Department of Missouri for duty as attending surgeon at Leavenworth Military Prison, Fort Leavenworth, Kansas. —*S. O. 257, A. G. O.*, November 4, 1886.

Forward, W. H., *Major and Surgeon.*—From duty as attending surgeon at Headquarters of the Division of the Missour and examiner of recruits at Chicago, Ill., to the Department o Dakota.—*S. O. 257, A. G. O.*, November 4, 1886.

Hubbard, V. B., *Major and Surgeon.*—From the Department of Arizona to duty as attending surgeon at the Headquarters o the Division of the Missouri and as examiner of recruits at Chicago, Ill.—*S. O. 257, A. G. O.*, November 4, 1886.

Perley, Harry O., *Captain and Assistant Surgeon.*—Granted leave of absence for four months on surgeon's certificate of disability.—*S. O. 257, A. G. O.*, November 4, 1886.

Ives, Francis J., *First Lieutenant and Assistant Surgeon.*—Ordered to proceed to and take station at Fort D. A. Russell, Wyoming Territory.—*S. O. 145, Department of Platte*, November 4, 1886.

PROMOTION.

O'Reilly, Robert M., *Captain and Assistant Surgeon.*—To be Major and Surgeon, November 1, 1886, vice Clements, deceased.

APPOINTMENTS.

Clendenin, Paul, First Lieutenant and Assistant Surgeon, November 5, 1886.

Anderson, Charles L. G., First Lieutenant and Assistant Surgeon, November 5, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING NOVEMBER 6, 1886.

Ames, R. P. M., *Passed Assistant Surgeon.*—Relieved from duty at Marine Hospital, New York, N. Y., to assume charge of Marine Hospital, Vineyard Haven, Mass., November 1, 1886.

Urquhart, F. M., *Passed Assistant Surgeon.*—To proceed to Norfolk, Va., for duty, November 4, 1886.

Yemans, H. W., *Passed Assistant Surgeon.*—Relieved from duty at Marine Hospital, San Francisco, Cal., to assume charge of the Service at Galveston, Texas, November 1, 1886.

Wasdin, Eugene, *Passed Assistant Surgeon.*—When relieved, to proceed to New York, N. Y., for duty at Marine Hospital, November 1, 1886.

Williams, L. L., *Assistant Surgeon.*—Relieved from duty at Marine Hospital, Wilmington, N. C., to proceed to Pittsburg, Pa., for temporary duty, November 5, 1886.

Perry, T. B., *Assistant Surgeon.*—Relieved from duty at Marine Hospital, St. Louis, Mo., to proceed to San Francisco, Cal., for duty at Marine Hospital, November 1, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL LECTURES.

ON INSUFFICIENT DIET, AND THE HYGIENIC TREATMENT OF OBESITY.[1]

A Lecture on Hygienic Therapeutics.

BY PROF. DUJARDIN-BEAUMETZ, M.D.,
OF PARIS, FRANCE.

GENTLEMEN: In a preceding lecture we have considered the bases of dietetics. We have also ascertained the sum of foods which suffice for the necessities of nutrition. When the daily diet becomes insufficient, there supervenes a series of phenomena described under the name of inanition, the effects of which have been so well described by Bouchardat and Chossat.

In inanition we see successively disappear fat and muscle, and man becomes *autophagic*—living on his own substance; the proportion of urea excreted diminishes every day; the temperature falls; and the individual soon succumbs to the progressive depravement of his organism.

This inanition may be due to several causes: sometimes it results from insufficiency of food; sometimes, on the contrary, the diet is sufficient, but special conditions of the economy oppose the healthful nutrition of the tissues. It does not enter into the plan of this course for me to consider the mechanism and causation of inanition, and I have only to point out the applications which may be made of spare diet in the treatment of disease.

Spare diet, or *negative diet*, as it has been called, has been recommended in the treatment of numerous affections. Valsalva urged its utility in aneurisms of the aorta; he employed in the treatment of these aneurisms a very heroic method, which was based on abstinence and bloodletting. The patient was allowed only half a pint of soup in the morning, a little less in the evening, and no drink but water flavored with quince jelly. To this was added repeated venesections, and this treatment was continued until the patient was so reduced as to be unable to leave his bed, or even raise his arms. If certain medical authorities[2] have reported cases of cure by this method, it must be admitted that the failures have been so numerous as to stigmatize this system as detestable, and he would be a foolhardy man who would propose it in our day.

From aneurisms of the aorta the transition was easy to what has been described as *aneurism of the heart*, and which was nothing, but hypertrophy of this organ, and we have seen Corvisart and even Laennec vaunt the advantages of spare diet in the treatment of affections of the heart. I have no need to insist here on the perniciousness of this treatment, which, if carried out, could only aggravate the troubles of the circulation in cardiac patients.

The spare diet regimen has also been employed in diathetic affections, and it is especially in the treatment of syphilis that clinical authorities have made use of what has been described under the name of *cura famis*. Ulrich von Hutten, in 1677, and afterward Astrac treated syphilitic diseases by guaiacum and low diet. For about two months the patient was confined in a room where no food was allowed him but a little bread, a few grapes, a little chicken broth, and he was still further debilitated by successive sweats. In this vegetable treatment, so extolled by the antimercurialists, guaiacum and the other sudorific medicaments played only a secondary part, and it was chiefly the severe dietary regimen to which the patients were subjected which was regarded as the curative element. This mode of treatment has been taken up again in our day in Sweden, and we have only to go back to 1811, to find Osbeck, of Stockholm, physician to the Hospital St. Seraphin, claiming that by this means he could arrest the most stubborn manifestations of syphilis.

Lastly, surgeons, and even obstetricians, have utilized the low diet system; the former to cause fatty tumors (lipomata) to disappear, the latter to reduce the volume of the fœtus in some cases of narrow pelvis, so that parturition might be more easily accomplished. Although Merriman, Baudelocque, Moreau, and even Depaul, have reported cases where wonderful results of this kind have been obtained, I confess that I believe it to be a dangerous method, which, while having but a hypothetical value in diminishing the size of the child's head, must considerably debilitate the mother, and place her in unfavorable condition for a successful delivery, and a good convalescence.

To these supposed advantages derived from low diet, we may add the hypothetical influence of abstinence in promoting absorption of certain inflammatory products. I have seen my master, Nonat, employ frequent bloodlettings and low diet, with the intent to "discuss" perituterine phlegmons. It has been supposed that pleuritic and other effusions might be made to disappear more rapidly by "starving" the absorbents. But all these methods are to-day abandoned, as both useless and pernicious.

In applying a spare diet regimen to the treatment of obesity, more logical good sense has been shown. Nothing seems to be more reasonable, for one of the first effects of inanition is to cause consumption of the fat which has accumulated in the tissues.

The etiology of obesity is very complex. I cannot here enter into all the details connected with this vexed question of pathogeny, and what I have to say under this head will be brief; for a more complete consideration of this subject, I must refer you to an important

[1] Translated, from advance sheets, by E. P. Hurd, M.D., of Newburyport, Mass.

[2] Notably Stancario, of Bologne; Luke, of London Hospital; Pelletan, in France.

chapter on the "Pathogeny of Obesity," in Bouchard's work on *Diseases by Retardation of Nutrition*.[1]

The diet has very much to do with obesity, and we have first to note the important *rôle* which fatty foods have in the production of polysarcia. In this respect all physiologists are agreed, and if each animal species makes its special fat, adipose tissue is derived chiefly from fatty substances ingested, and the recent experiments of Debove confirm fully this view.

Fat is also derived from carbohydrates, and here zoötechnic experiments are absolutely demonstrative, most animals fabricating their fat out of amylaceous food substances. Lastly, fat may also be formed from azotized food; and Henneberg has shown that an ounce of albumen may furnish half an ounce of fat. But we are not to look for the sole cause of obesity in alimentation, and if Etmuller was able justly to say, *In stomacho prima rudimenta obesitatis*,[2] it must be admitted that heredity has much to do with corpulence. There are families characterized by their obesity, and just as in zoötechnics we find varieties of animals that are more easily fattened than others, so among mankind we find lean races and races that naturally take on adipose development.

In those disposed to develop fat, this substance accumulates little by little in the cellular tissue, impedes the respiration and circulation, and hinders muscular exercise, so that the corpulent person eventually lives in a sort of vicious circle. The more the adipose tissue develops, the less exercise he takes, and the want of exercise favors *embonpoint*. But I am ready, with Ebstein, to admit that we must make a difference between obesity, properly so-called—that is, simple fatty deposition in the tissues—and fatty transformation or degeneration of organs.

Ebstein, in his work on obesity (lately published) divides into three periods of degeneration or retrogression the life of a corpulent person. In the first period the individual is *envied;* every one admires his corpulence. In the second period he is a being that is laughed at; he is a Silenus, a Falstaff, or some other big-bellied hero of a comedy. In the third period the obese person becomes an object of commiseration; he is a patient whom everybody pities.

Obesity may be general, but oftener it is met with in that partial and limited form in which great ventral development is coincident with small or ordinary sized limbs and a moderate thorax. There are three factors in this abdominal *embonpoint:* accumulation of fat in the omentum and abdominal walls, distention of the intestines and stomach, and weakness of the abdominal walls, which readily yield to the pressure resulting from these two causes. Brillat-Savarin, who has given us a curious chapter on obesity and its treatment (see his *Physiologie du Gout*), calls those affected with this kind of corpulence gastrophorous or big-bellied, and says of himself that though enormously "pot-bellied," yet his arms were well muscled and graceful, and his legs were as slender as those of an Arab steed.

To combat obesity three sorts of means have been advised; pharmaceutical means, exercise, and a special diet. I shall first consider the dietetic treatment.

From early antiquity attempts have been made to oppose obesity. The Grecians, in particular, who attached so much importance to beauty of person, multiplied means to diminish corpulence, and Hippocrates in his numerous writings returns repeatedly to the subject. Permit me to transcribe one passage from Hippocrates which is of great interest as pointing out one principle in the treatment of obesity on which Ebstein has so much insisted of late years. I refer to the use of fatty food in the dietary of the corpulent. This is the way in which the Father of Medicine expresses himself on this subject: "Fat people, and all those who wish to become lean, should do much hard work while fasting, and should take their meals while still fatigued, and without resting, and after having drunk a little weak wine: their meats should be prepared with sesamum and suitable seasoning, *and should be fat;* in this way appetite will be satisfied with a smaller quantity. The obese person should eat but one meal a day, should not bathe, should sleep on a hard bed, and should walk as much as possible."

You will find, moreover, in the interesting and curious thesis of Worthington,[1] a multitude of references which show how much this question of obesity interested our ancient forefathers. At the same time, it is not til of late years that the treatment of obesity has taken a definite scientific shape, and it is to Dancel, a French military physician, that we are indebted for the first principles of the new therapy of corpulence. Dancel's first writings appeared forty years ago. This physician, who belonged to a regiment of cavalry, had remarked the influence of water and frequent drinking on the development of the abdomen of horses, and he had deduced from these observations one of the fundamental bases of his hygienic treatment, which consists in reducing as much as possible the water of drinks and of food. He permitted only one, or at the most two, glasses of liquid with each meal, or a quantity scarcely exceeding half a pint. He discarded soups and aliments containing a considerable quantity of water; he suppressed also from the diet all fats and starchy food, frequently purged his patients, and made them take long walks daily.

In an interesting communication made by my friend Constantin Paul,[2] and from which I have drawn largely for material for this lecture, he has shown the progress of a case which he has watched since 1876, and in which the method of Dancel has caused a very marked reduction of weight, only by dint, however, of carrying out the treatment with rigorous exactness.

Dancel's method has been adopted in England, where it has taken the name of Banting's method, in honor of the patient who first put in practice this treatment, and published the report of his own case. This individual was a man sixty-five years of age, by the name of Banting, five feet six inches in height, and weighing, in August, 1862, two hundred and two pounds. Banting submitted to the Dancel regimen prescribed by his phy-

[1] Bouchard: Maladies par ralentissement de la Nutrition, 2d ed., 1885, p. 107.

[2] Obesity originates in the stomach.

[1] On Obesity. Thèse de Paris, 1878.

[2] On the Treatment of Obesity. (Bull. et Mém. de la Soc. des Hôp., May 24, 1886.)

sician, Harvey, and with such success that in May, 1863, his weight was reduced to one hundred and fifty-six pounds.

I transcribe, literally, the account of the course pursued by this man to obtain diminution of his weight, from his "Letter on Corpulence addressed to the Public," published in London, 1874.

"*Breakfast* at 9 o'clock in the morning; five or six ounces of either beef, mutton, kidneys, broiled fish, bacon, or cold meat of any kind except pork or veal; a large cup of tea or coffee without milk or sugar, a little biscuit, or one ounce of dry toast; making together six ounces of solids and nine of liquids. *Dinner* at 2 P.M.: five or six ounces of any fish except salmon, herrings, or eels; any meat except pork or veal; any vegetable except potato, parsnip, beet root, turnip, or carrot; one ounce of dry toast; fruit out of a pudding not sweetened; any kind of poultry or game, and two or three glasses of claret, sherry, or madeira—champagne, port, and beer forbidden; making together ten or twelve ounces of solids and ten of liquids. *Tea*, at 6 P.M.: two or three ounces of cooked fruit, a rusk or two, and a cup of tea without milk or sugar; making two to four ounces of solids, and nine of liquids. *Supper* at 9 P.M.: three or four ounces of meat or fish, similar to dinner, with a glass or two of claret or sherry and water; making four ounces of solids and seven of liquids. A little unsweetened punch, or a glass of sherry, if desired, on retiring."

As you see, Harvey followed the method of Dancel, with some abatement in the quantity of food permitted. He allowed only 170 grammes (or 5⅔ ounces) of albuminoid matters, 10 grammes (or ⅓ ounce) of fatty matters, and 80 grammes (2⅔ ounces) of cabohydrates; while Dancel, on the other hand, gave the patient leave to eat all he wanted of articles of food which were not prohibited.

From England, this method passed over to Germany, where it was perfected, and, in the hands of Ebstein, Dancel's and Banting's system has undergone modification in a new direction. Struck with the fact that fatty substances are with difficulty assimilable, and that moreover they assuage both hunger and thirst, he permits them to his corpulent patients. This does not imply, as he rightly says in his work, that he treats obesity by a fatty regimen, but he simply restores to fat the rights which belong to it as an aliment.

This is the substance of Ebstein's regimen, which, in a man forty-four years of age, causes a very notable diminution in his obesity. He allows three meals, breakfast, dinner, and supper. Breakfast at 7.30 A.M. in winter, at 6 A.M. in the summer; a half pint of tea, without milk or sugar; one and two-thirds ounces of dry toast well buttered. Dinner, the principal meal, at 2 P.M.; soup of beef's marrow, four ounces of fat meat with some rich sauce, vegetables in moderate quantity. Ebstein forbids starchy foods, and vegetables containing sugar. As a drink, two or three glasses of light white wine, and after dinner a large cup of black tea without milk or sugar. Supper at 7.30 P.M.: a large cup of tea without milk or sugar, an egg, or a little roast beef well streaked with fat; an ounce of fine flour bread well buttered.[1]

In 1885 Professor Œrtel, of Munich, published a very complete work, in which this question of obesity is treated in its entirety. He makes a distinction, accepted by Professor Sée, between obese persons with fatty heart, and those who have no trouble of the circulatory apparatus; like Dancel, he suppresses from the dietary fatty matters and carbohydrates.[1]

Schwenninger, in applying the method of Œrtel to the son of the Grand Chancellor, gave it a great notoriety; but while adopting as a basis the precepts of Dancel, he considerably modified the method by the absolute suppression of drinks with the meals. The patient was not allowed to drink until two hours after meals; he was then allowed to drink all he wanted.

In two important communications made last year to the Academy of Medicine, Professor Germain Sée has taken up anew this question of the physiological treatment of obesity, and, like Œrtel, he makes a distinction between the obese with fatty degeneration of the heart, and those with sound heart.[2]

Prof. Sée, while sanctioning the reduction of fats, and especially of starches in the dietary of the corpulent, parts company with all previous authorities in allowing the free use of drinks, and especially of tea and coffee. He, in fact, considers water as denutrient, and thinks it promotive of the combustions of the economy. He thus sums up the treatment of obesity:

"1. The physiological regimen comprehends 120 to 130 grammes (4 to 4½ ounces) of azotized principles, derived from 250 to 300 grammes (8 to 10 ounces) of muscular flesh or of albuminoids; 100 to 120 grammes (3 to 4 ounces) of neutral fats, plus 250 grammes (8⅓ ounces) of carbohydrates furnished by 300 to 400 grammes (10 to 14 ounces) of starch or sugar; these proportions should be modified in such a way that the musculo-albuminous substances shall not much exceed the normal ration, for meat in excess, in breaking up, forms fat. The fats which are of easy digestion may without harm be used in the proportion of 60 to 90 grammes (2 to 3 ounces); the carbohydrates should be reduced to a minimum; as for herbaceous vegetables, they contain nothing nutritive.

"2. Drinks, instead of being suppressed should be augmented, in order to facilitate the gastric digestion, and promote general nutrition. It is necessary, however, to eschew alcoholic liquors, especially beer, as well as mineral waters; tea and coffee (drunk as hot as possible) may be used instead.

"3. Muscular exercise of all kinds is imperative on the obese; exception may be made of riding, which is passive exercise.

"4. Sweats, vapor baths, warm baths, and hydrotherapy in all its forms may present certain advantages.

"5. Among medicines the most useful are the iodides in small doses, and the sodic chloride waters, which act only temporarily. Alkaline waters and alkalies generally, which act so powerfully in the diabetes of fat people, have no well-defined action in ordinary obesity. Every other medicinal treatment is quite inefficacious."

Lastly, in a communication made to the Society of the Hospitals, my colleague, Albert Robin, has endeavored to lay down the rules which should direct the drink-regimen of the obese. You have, in fact, just seen how widely authorities differ on this point. While almost all physicians who have studied this question of obesity have adopted Dancel's view, and reduced to a

[1] Ebstein: On Obesity and its Treatment, 1883.

[1] Œrtel: Handbuch der Allgemein Therapie der Kreislaufs Hœrungen, Leipzig, 5th edition, 1885.

[2] Germain Sée: Traitement physiologique de l'obésité et des transformations graisseuses du cœur. (Académie de médecine, Sessions of 29th Sept. and 6th Oct., 1885.)

minimum the water to be taken with meals, even going so far as to proscribe it altogether, as Schwenninger has done; others, as Prof. G. Sée, permit drinks to be taken freely.

Albert Robin, after having verified on himself the experiments of Genth, and after having noted the augmentation of urea under the influence of increase of drinks, divides the obese into two classes: those attended with excess and those with deficiency of urea; this division he bases on the quantity of urea excreted daily. If the figure exceeds the average, the obesity is *with excess*, if less than the mean, it is *obesity with deficiency*.

In cases where the quantity of urea is an average, the clinician will be guided by what Robin calls *the coefficient of oxidation*, which is the relation which exists between the solid materials of the urine and the urea. If this coefficient is higher than the normal, the obesity comes under the first head (*i. e.*, by excess); if lower than normal, it belongs to the second class.

In all cases where there is obesity by excess, we should permit drinks, and even counsel them to be taken very freely; in all cases, on the contrary, where we have to do with obesity with deficiency of urea, the amount of drinks should be restricted. In support of this view Robin refers to several interesting cases in which the application of this method produced a notable reduction in weight. But it is worthy of note that all these patients, obese by excess or deficiency of urea, were subjected to an insufficient dietary regimen, which consisted in giving them from 300 to 400 grammes of meat, 100 grammes of fresh vegetables, and from 100 to 150 grammes of bread.

When once all these data are mastered, you will be able to compare these regimens and decide as to their relative merits. Whatever may be the method adopted, you will bear in mind that the regimen of the obese is always an insufficient regimen. Cast your eye over the following table, which I borrow from Constantin Paul's communication, and compare it with the normal regimen, the bases of which we have established, and you will find this conclusion force itself upon you.

Average Regimen of the Obese.

Authorities.	Albuminoid matters.	Fatty matters.	Carbohydrates.
Voit	118	40	150
Harvey	170	10	80
Ebstein	100	85	50
Œrtel	155–179	25–40	70–110
Normal ration	124	55	435

This insufficient regimen explains why there is always autophagism in the obese; it is this self-consumption which causes the lessening of the obesity, and when you attentively examine each of these regimens, you see that by variable artifices they all arrive at the same end—reduction of the daily rations.

If Ebstein advises fatty foods, it is because they diminish the sensation of hunger, and by the satiety which they produce, they prevent the obese person from eating too much. If Dancel discards sauces and all condiments, it is because meats when well seasoned excite the appetite. If others, as Bouchard, order a uniform regimen of eggs and meat and exclude everything else, it is because the very uniformity of the regimen produces a certain fatigue of the digestive powers and a certain disrelish. If Schwenninger forbids the use of fluids at meals, it is because he knows well that it is difficult to eat without taking drink.

In a word, what you have to do is, by some one of the approved means, to diminish the alimentation of the obese, and especially to reduce to the minimum the quantity of amylaceous and hydrocarbonaceous elements of the dietary. It is for you to choose the regimen which seems most appropriate for the case which you have to treat.

The corpulent are, in fact, divided into two groups; the one are strong and vigorous, and are great eaters; the others, on the contrary, are weak and debilitated, with soft and flabby flesh. It is impossible to adapt the same dietetic regimen to both groups, and in his excellent article on regimen in sickness, the late Edward Smith insisted especially on this point.[1] Those of the first group may undergo all the rigorousness of reduced diet with impunity, those of the second group will only be injured thereby. You will be obliged then, as you see, to adapt your dietary regimen to the different cases.

As for drinks, you should take as your guide the indications furnished by Albert Robin; but if you may modify according to circumstances the quantity of water daily ingested, you ought absolutely to proscribe alcohols, and, as a general rule, allow only water. This is the opinion of our excellent friend and colleague, St. Germain, who has shown by an experiment made on himself, the happy influence of regimen and exercise in the treatment of obesity. St. Germain would allow neither bread nor wine.

To reduction of diet should correspond an increase of exercise. Here there is unanimity of opinion; eat little and work till greatly fatigued, are the essential points in the hygienic treatment. When I come to speak of gymnastics, of massage, of sudations, and of hydrotherapy, I will show you the happy effects of these agents in the cure of polysarcia. Among these exercises, I insist especially on the benefits of *the wall exercise*. The patient stands with his back firmly fixed against a wall, then he raises his arms above his head and keeps them firmly extended, at the same time swinging them back and forth, and describing a half circle. This exercise develops the abdominal muscles, and gives increased rigidity to the abdominal walls.

Lastly, there is a pharmaceutical mode of treating polysarcia, and we have seen vaunted the good effects of acids, and vinegar in particular, the Fucus vesiculosus, iodine, and the iodides. All these means have but a secondary place in the treatment of obesity, but it is not so with purgatives and alkalies.

Purgatives of whatever kind, and in particular purgative waters and drastic cathartics, are all applicable to the treatment of polysarcia. In fact, in corpulence the development of the intestine plays a considerable part, and by our purgatives we not only obtain for the patient the benefits of a "white bleeding," but we diminish the intestinal tympanism.

As for the alkaline waters, they have a real influence on the march of obesity, especially when they are slightly purgative. There are special treatments for reduction and emaciation practised at Driburg, at Ems, at Kissin-

[1] Edward Smith: On Diet in the Treatment of Disease. Lancet, May 14 and 21, 1864.

gen, and especially at Carlsbad and at Marienbad. Note that in all these stations, besides the administration of the waters and a rigorous diet, joined to prolonged exercise, the presiding physicians make their patients take "reduction pills" or powders, which all consist of drastic purgatives.

In France, Philibert, who was able to test on himself the good effects of the reducing treatment of Marienbad, has instituted at Brides, in Savoy, a course of treatment similar to that pursued in Germany.[1]

To sum up, this is my usual procedure: I begin by a thorough examination of the patient who claims my care for the cure of obesity. I take note whether there exists in him any organic vice which explains or complicates the obesity; for, as Bouchard has well remarked, in a great many cases the polysarcia constitutes a secondary disease. I examine attentively the heart and circulation; fatty degeneration of the heart is, in fact, a complication which is often found in the polysarcous, and the existence of such degeneration should considerably modify the rigorousness of our treatment. When once these points are settled, and after having satisfied myself as to the soundness of the organs, I order the following regimen:

As for drinks—either the patient drinks at his meals, or he pledges himself to drink nothing at all at meal-time. In the first case I limit the quantity of liquid to a tumblerful and a half, or about ten fluid-ounces. This drink shall consist of red or white wine, diluted with an alkaline water, Vals or Vichy. In the second case—*i.e.*, where only drinking between meals is practised—the patient may drink more abundantly, but he must drink nothing until two hours after meals; then he may take weak tea without sugar. I proscribe absolutely beer, bitters, and spirits. In some cases I allow a little strong coffee after breakfast.

As for foods, I forbid soups, and authorize fish, eggs, meat, green vegetables and fruits, but I reduce to a minimum starches.

As for bread, I prefer the light baker's loaf of which the crust forms the principal part, such loaves as are known in Paris by the name of "Peter's flute bread;" the American rusks and light pilot biscuits are also to be commended, while pastries should be utterly interdicted.

I require that the patient shall weigh all his food, and that he shall keep within the following limits:

Breakfast at 8 A.M.: one ounce of bread; two ounces of cold meat (ham or beef); seven ounces of weak tea without sugar. Lunch at noon: two ounces of bread, three ounces of meat or ragoût, or two eggs (the egg without its shell weighs from eleven to twelve drachms); three and one-third ounces of green vegetables, half an ounce of cheese; fruit *ad libitum*.

Dinner at 7 P.M.: two ounces of bread, three and one-third ounces of meat of some kind, or ragoût, four ounces of green vegetables, half an ounce of cheese, fruit *ad libitum*.

I join to this treatment the employment of purgatives, whether under the form of purgative waters, or of laxative pills or powders. I order physical exercise appropriate to the subject, and lastly, I enjoin massage.

I have obtained remarkable results from this regimen. Only a short time ago I saw, with Dr. Francis, at Ivry, a man thirty-five years of age, of short stature, and weighing two hundred and fifty pounds. This patient had arrived at such a state of corpulence that life was to him a real burden and a difficulty; moreover, he had got into a torpid state which nothing could overcome. All the functions of the economy seemed to be impeded, and asphyxia was imminent. To-day this man, by following my regimen, is sixty pounds lighter, and he is still losing several pounds a week. You will find this interesting case reported, along with others, in the thesis of my pupil Geoffroy.

Are we always as successful as this? Unhappily, no! Age, in fact, plays a considerable *rôle* in the prognosis of obesity, and by as much as you are warranted in assuring a cure in patients under thirty-five years, by so much will you be likely to find your efforts of little or no avail if your patient has attained the age of forty-five or fifty years. The results of treatment depend also on the cause of the obesity, a disease which is generally secondary; the pathogeny of obesity is not limited to one or two causes, and for that very reason it resists more or less the treatment directed against it. The state of histological integrity of the organs should influence your prognosis, and when, for instance, there is fatty degeneration of the heart, you can do nothing by a reducing treatment, which is a treatment of inanition, and is sure to enfeeble and damage the heart, and thus shorten the life of the patient. Lastly, the result of the treatment will depend very much on the willingness of the patient to comply strictly with all the rules of the regimen prescribed. You should, in fact, never forget that in undertaking the treatment of obesity it is not enough simply to lay down precise and rigorous regulations; you must see that these are carried out, and this will often be a trying and difficult matter; for the obese person, notwithstanding his great desire to become thin, easily tires of the regimen which you prescribe, and as soon as he obtains a slight amelioration, he is very likely to transgress, and go back to his former diet, and in a few days all your gain, so dearly purchased, is lost.

Such, gentlemen, are the indications which I desired to furnish relative to the treatment of obesity. In the next lecture I shall consider the opposite side of the question, and shall take up the subject of superabundant diet.

[1] Philibert: Du Traitement de L'Obésité et de la Polysarcie. (Thèse de Paris, 1874, No. 345.)

ORIGINAL ARTICLES.

LAPAROTOMY IN THE TREATMENT OF SPONTANEOUS GLUTEAL AND SCIATIC ANEURISMS.

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The surgical treatment of spontaneous gluteal and sciatic aneurisms has always been extremely unsatisfactory. The results of the various operations for the cure of this special form of aneurism have been attended with a high rate of mortality. The reasons for failure and the fatality by the older operations were obviously due to causes which may be said to be avoidable at the present time. Among the obstacles to a successful issue in the treatment of gluteal

aneurism by former methods may be mentioned the occurrence of secondary hemorrhage, the presence of purulent œdema of Pirogoff in the subperitoneal tissue, the puncture of the veins and injury to important structures owing to the limited space, the ligation of the ureter, the onset of peritonitis, the formation of pelvic cellulitis, and other like complitions which made the mortality upward of fifty per cent.

The present unsettled opinion among surgeons as to treatment of this aneurism indicates that as yet no unanimity exists, and a review of the various methods which have been recommended, clearly demonstrates how wide is the breach. For example, Mr. Timothy Holmes in his college lectures claims that in gluteal aneurism the operation of Antyllus or Anel offers the best chances of success. In five cases in which the operation of Antyllus was performed four recovered and one died, and of four cases in which the operation of Anel was performed two recovered and two died; thus showing a death-rate of thirty-three per cent.

Fischer, of Hanover, concludes that the operation by injecting perchloride of iron into the sac affords the best chance of success. In six cases in which this operation was resorted to, four recovered and two died, thus giving a death rate of thirty-three per cent.

Ribert recommended proximal pressure on the aorta, and direct compression over the sac. This was tried in one case. The patient's condition improved; but in a few months the aneurism returned and the patient died.

Hamilton recommended ligation of the internal iliac artery by an incision parallel with Poupart's ligament, and pushing back the peritoneum. In eleven cases in which this operation was performed, six recovered and five died, thus giving us a rate of mortality of about forty-four per cent.

The plan of treatment by rest and expectancy has been suggested by several authors. This method was adopted in six cases, five of these died and one was cured, but only temporarily, as the aneurism returned in a short time.

Galvanopuncture has also been recommended, but in the one case in which this method was tried the case terminated fatally.

It is evident, therefore, from an examination of the treatment at present in vogue that much is to be desired in the way of perfecting a plan of treatment which will permanently cure the aneurism, and at the same time reduce the present high rate of mortality. Nothing is to be expected from non-interference.

Gluteal aneurism, as a rule to which there is but one recorded exception, progresses steadily and rapidly to certain death from hemorrhage. Among all writers this opinion prevails, and among all the cases of gluteal aneurism which have been collected from various sources there is only one case in which a spontaneous cure has taken place. When the great difficulties of a positive diagnosis from other diseases is taken into consideration, the one recorded case of spontaneous cure admits of doubt; but still, on the other hand, it can be said that the anatomical relations of gluteal aneurism afford certain conditions favorable to the accomplishment of this object. Whether it is admitted or not that spontaneous cure ever occurs, no surgeon can place any reliance upon this process of cure, and refuse, on this account, to take active steps to cure the disease.

The performance of laparotomy as an initiative and necessary step in the ligation of the internal iliac artery seems to meet the exigencies of the case. That laparotomy may appear to be a severe measure as a preparatory step no one can deny: but, while it may seem a desperate measure, it must be remembered that the disease is a uniformly fatal one, and, therefore, calls for heroic measures to overcome the dangers which await the patient.

After carefully reviewing the literature of spontaneous gluteal aneurism, and investigating the high rate of mortality following the operations for the cure of this variety of aneurism, and after considering thoughtfully the unsatisfactory results and the causes which brought about these results, there seemed much to be desired in reference to an operation which would effect a permanent and radical cure, and which would diminish the high rate of mortality. With these important questions in mind, a new operation was necessary to make the treatment of gluteal aneurism satisfactory.

With a view to the settlement of the first question, namely, the accomplishment of a permanent and a radical cure in gluteal aneurism, it would seem that the application of the principle of John Hunter in the treatment of aneurism in general would be especially adapted to this form of aneurism. The ligature of the main artery on the proximal side in healthy arterial tissue yields the best results. The principle of compression is not applicable here, though in the form of Esmarch's bandage in certain aneurisms this plan has met with most brilliant success. The injection of coagulating fluids into the sac, and all the other operations are obviously not suited to the gluteal aneurism. While in theory and practice the Hunterian method is the best operation in those forms of aneurism in which compression by elastic bandage is inadmissible, the same principle holds good in gluteal aneurism. If it can be shown that the ligation of the internal iliac on the proximal side of the aneurism can be performed with immunity from those accidents which have caused death, the difficult problem of a safe and permanent method of cure has been solved. It remains, therefore, to show that when the Hunterian operation has been performed the causes of death have been attributed to certain defects in the method of ligating the internal iliac artery, and that if any plan can be adopted which will not only effect a radical cure in the aneurism, but at the same time which will be free from danger to the patient, an ideal operation has been established for the treatment of this fatal disease.

An examination into the causes of death after ligation of the internal iliac artery, shows that in the majority of the cases death resulted from secondary hemorrhage, laceration of the peritoneum, wound of the contiguous vessels, tying the ureter, pelvic cellulitis, abscess, and purulent œdema. In

other words, excluding uræmia, nearly all the deaths may be attributed to some fault in the method of operation in the surgeon's attempt to secure the internal iliac artery.

If now it can be demonstrated that the internal iliac artery can be reached and ligated without incurring the risks common to the older operation of Abernethy or Cooper, the science of surgery can point to a means of saving life in these desperate cases, where heretofore human lives were sacrificed.

No argument is needed to prove that the internal iliac artery can be tied with safety and with no damage to the surrounding and adjacent structures, if the surgeon can pass the aneurism needle around the vessel with all the pelvic viscera removed. This is obvious; but the question upon which everything hinges is the safety of the opening of the peritoneal cavity and removal of its contents, in order to expose the artery. If this procedure can be proved to be free from danger, then the complete operation in each of its several stages will form a new method of cure for the relief of spontaneous gluteal aneurism, which cannot but commend itself to the sound judgment of every surgeon.

With regard to the proof of the safety of laparotomy, as a preparatory step to ligation of the internal iliac artery, for the application of the Hunterian principle in the treatment of spontaneous gluteal aneurism, it becomes necessary to study the rate of mortality attending an ordinary laparotomy. A reference to the statistics of laparotomy will not afford reliable data from which to draw conclusions; because, if the laparotomy is performed for ovariotomy, the death-rate has become so low that it need not offer any barrier to the operation. A reference to Lawson Tait's one hundred and thirty-nine consecutive ovariotomies without a death, is corroborative of this statement. On the other hand, if the laparotomy is performed for gunshot wound, or stab wound, or intestinal obstruction, or malignant disease, the death-rate is comparatively high, and thus the mortality of laparotomy would preclude the adoption of this measure as a preparatory step to tying the internal iliac artery. A laparotomy in which the contents of the abdominal cavity are removed, is an operation of greater severity than most ovariotomies and of less severity than abdominal section would be in perforating wound of the abdomen, or in intestinal obstruction. Laparotomy for removal of a portion of the intestinal canal, however, has one very favorable condition, and that is the absence from shock, as is the case where abdominal section is attended with a high rate of mortality.

Laparotomy as a preparatory step to ligation of the internal iliac artery for the cure of spontaneous gluteal aneurism thus may be said to stand midway between these two extremes with regard to its mortality. In the future, as the technique of abdominal section improves, the small fractional death-rate which now attends the operation will be reduced to that of a simple oöphorectomy, which is practically no death-rate at all. In the laparotomies which I have performed I have never had a patient die during the operation: but, invariably, I have noticed that the symptoms were improved after the operation. In the cases of perforating wound to which this statement is applicable, it must be remembered that shock existed before the laparotomy, and that in those cases where an exploratory laparotomy was performed without the presence of shock, the patients invariably reacted, and their condition was in every respect satisfactory as regards the reaction.

Laparotomy performed under suitable antiseptic precautions, and in a patient whose condition before the operation is in every way satisfactory, may be said, in the light of present statistics, to be free from any danger which would render it inexpedient to perform the abdominal section.

When the paramount advantages are considered in regard to the safe ligation of the iliac arteries, and with an immunity from all other accidents so common by the older methods, laparotomy as a preparatory step to securing safely the internal iliac artery in this special form of aneurism seems to be an ideal operation for the cure of a surgical disease which formerly was attended with a death-rate of nearly fifty per cent. The internal iliac artery has been tied four times for spontaneous gluteal aneurism: three of these aneurisms occurred in my hospital service during the past year, and one of which belonged to Dr. W. Locke Chew, of Alabama. The history of each of these operations will be given with remarks.

Case I. *Double gluteal aneurism; laparotomy, and ligation of both internal iliac arteries simultaneously; death from suppression of urine on the fourth day.*—I. McC., æt. sixty, admitted to St. Vincent Hospital February 5, 1886. Patient was sent by Dr. Carpenter, of Boonton, New Jersey. Patient has always enjoyed good health until three years previous to date, when she complained of pain along the course of the sciatic nerve upon the right side. The pain was not relieved by medication, either general or local. A year and a half later a swelling became apparent on this buttock, which was accompanied by throbbing, and the tumor steadily increased in size, with no abatement of the pain. As these symptoms increased, the patient began to lose flesh and strength. The diagnosis of gluteal aneurism was made by Dr. Carpenter.

Upon admission to St. Vincent Hospital there was found a large, tense, pulsating tumor occupying the entire gluteal region, and tapering down to the trochanter major of the right femur. The skin over it was natural in color, but very tense; a thrill was felt on palpation, and a distinct bruit heard on auscultation; pulsation very marked. Tumor measured thirteen inches from the tuberosity of the ischium to the trochanter major. On the opposite side, measurement from the same points seven inches. Right leg was somewhat swollen and œdematous. On the left buttock a slight tumor was found on palpation. It was situated along the course of the gluteal artery at about its middle. A distinct pulsation was here felt, accompanied by a bruit. Patient had pain here for a week before she was admitted to the hospital, and now feels a throbbing in the same situation. Good nourishment was

given, and stimulants were administered according to indications.

February 15th, patient has improved somewhat in general health, but pain still continues.

Operation.—February 18, 1886, the abdomen, perineum, and thighs were thoroughly scrubbed with warm water and soap. After this ablution the parts were irrigated with a solution of bichloride of mercury (1 : 1000). Especial attention was given to the purification of the umbilicus, which is most important to observe in all cases of abdominal surgery, as infection has been known to originate from a neglect of this precaution. The hair was cleanly shaven from the abdominal wall. A saturated solution of ether and iodoform was now poured over the abdomen, and the parts were thus made aseptic. Clean towels, wrung out in warm bichloride, were now placed over the abdomen, and the ether was administered.

In all capital operations requiring the patient to be kept under ether for any indefinite length of time, I have always adopted the rule of making the parts aseptic before the patient is anæsthetized. This saves the time during which it is necessary to keep the patient under ether, and in abdominal surgery especially this is important; because the surgeon can never form an idea of how long it may take to complete the operation. I have never found that the disinfection of the parts ever caused any discomfort to the patient; but, on the other hand, it often attracts the attention first before taking the ether. In this way the time during which the patient must take ether is shortened by an appreciable period of time.

The median incision was made, beginning at the umbilicus and extending downward to the symphysis pubis. Each layer was divided under continuous irrigation, and all vessels were ligatured, and the peritoneum was now exposed, which was carefully divided the length of the cutaneous incision. Everything was now in readiness for the removal of the intestine, and the hand was introduced into a warm solution of bichloride of mercury (1 : 5000). Towels and the elephant-ear flat sponges were now dipped into this mild warm antiseptic solution, and the contents of the peritoneal cavity were removed outside of the wound and wrapped at once into these towels and sponges, which were renewed from time to time to keep up equable and uniform temperature. Having removed the pelvic viscera as far as was necessary, my index finger felt the pulsation of the aorta, then the common iliac, then the external and internal iliacs. The peritoneum and the sheath were scratched and divided only sufficiently to admit the point of the aneurism needle. With scarcely any disturbance of the parts, the ligature of twisted catgut was passed around the vessel from within outward, care being taken not to include the ureter, which was double upon this side, as well as other important structures. The same procedure was immediately performed with reference to the other internal iliac artery; a little iodoform was dusted over the ligatures, and the intestine was now carefully returned into its proper cavity, and the peritoneum, deep fascia, muscles, aponeurosis, and the two layers of superficial fascia, with the skin were united by catgut and silver sutures. The entire incision was then dusted over with a thin layer of iodoform, and the superficial drainage tubes were introduced; but no tube was used to drain the cavity. The patient was under ether only about thirty minutes. I am indebted to Dr. Charles Phelps for his kind assistance and advice during the operation. The patient was removed to an adjoining room, and placed in bed.

4 P. M. Patient has not come fully out from the ether, as yet; moans continually, and is very restless. Pulse fair force, temperature normal. External heat applied to body, and morph. given hypodermatically. During the evening reacted nicely from the shock.

19th. Patient in a condition of mild delirium; temperature elevated; tongue dry; pulse rapid and feeble. Nutrient enemata given; morph. hypodermatically; water drawn by catheter.

20th. The dressings were removed and wound was perfectly aseptic. No tympanites; tongue dry and brown; temperature elevated. Peptonized milk given by enemata, also one drop tincture of digitalis every two hours.

21st. Patient sinking steadily, and vomited several times during day. The rectal temperature one degree lower than in the axilla.

22d. Patient died to-day.

Autopsy.—Rigor mortis well marked. On removing the dressing the abdominal wall had healed by primary intention. There was a little pus in the pelvis, about one of the ligatures, probably the result of her poorly nourished condition; the amount was very small, and there was lymph exudation. There was no peritonitis. The incision over the right buttock exposed the aneurismal sac extending from the origin of the gluteal from the internal iliac to a point below the trochanter major. An aneurism was found also upon the opposite hip. The aneurism upon the right side was very large, and was filled with laminæ of fibrin. The sac had, previous to operation, ruptured upon its inner surface, and had produced erosion of the ilium. The aneurism upon the left side was fusiform in shape, and was about four inches in length. The iliac vessels were both occluded by thrombi, and the ligatures included nothing but the internal iliac vessels. The kidney upon the right side had two ureters extending to the bladder. The kidneys showed a mild grade of diffuse parenchymatous nephritis. The suppression of urine was in all probability due to the acute congestion produced by ligation of the internal iliac arteries, and this condition was engrafted upon a chronic disease of these organs. The specimens are preserved in the museum of the Carnegie Laboratory.

Remarks.—There are some points of special interest connected with this case that seem to be worthy of consideration. The patient's mother, who is alive, is now considerably over one hundred years, and the patient herself was over sixty years. The aneurism was not single, as is the rule; but was double. This is the first case ever reported with both gluteal aneurisms developing simultaneously. The case is also the first one in which the internal iliac has ever been ligated with laparotomy as a preparatory step. It is also the first time in

the history of surgery that both internal iliacs have been tied at the same time. The patient reacted nicely from the operation, thus showing that even in a patient of sixty years a laparotomy can be performed without serious shock.

Another clinical fact of interest in connection with this case is the perceptible diminution of temperature in the rectum, as compared with the axilla. This is due, without doubt, to the fact that all the pelvic organs were poorly supplied with blood in comparison with the amount previous to the ligation of the internal iliac arteries.

Case II. *A case of spontaneous gluteal aneurism, diffused by manipulation; laparotomy; ligation of the internal iliac; cured.*—(By W. Locke Chew, M.D., of Birmingham, Ala.) W. T. S., a negro, aged forty-six years, a native of Georgia; residence for fourteen years in North Alabama; occupation an iron-ore workman, gives the history that seven months ago while going rapidly upstairs, felt a sudden stitch in the buttock and back part of the thigh. This pain was very intense at times, but never wholly absent. For the past seven weeks has been unable to walk, and the past four weeks has been confined to bed. About two and a half months ago noticed a marked swelling of right gluteal region, which "thumped as if my heart beat there." Dr. Cooper was called to see the case, and treated it only palliatively. Suspecting the tumor to be aneurismal, I was called to see the case in consultation with Dr. Cooper, on the morning of June 14th, at 11.43 A.M., and found the patient as follows: Right thigh flexed on abdomen and leg on thigh, adducted, and toes everted, violent spasms of the muscles of the calf and foot, considerable spastic rigidity of same parts; less violent muscular spasms in the posterior portion of the thigh; gluteal region of right hip very much distended, tense, and firm. Tumor as large as a fœtal head at sixth month. No increase in local warmth. On grasping tumor evenly with expanded hands, and making gentle pressure there was detected a very slight, indistinct, wavy expansion. Auscultation over tumor revealed an obscure bruit, but at the sacro-ischiatic notch and slightly lower a loud, grating bruit was noted. By pressure on the abdominal aorta both bruit and expansion could be readily stopped.

Dr. Cooper here gave the history that the swelling had been circumscribed, and thought it probable that it had been ruptured the day before by manipulation at the hands of a friend he had invited to see it. The diagnosis being arrived at, nothing more was done than to order the patient's bowels thoroughly opened by salts and warm enemata; the patient thoroughly washed, and clean linen placed on him and the bed; the room, a new one, was rendered as neat as possible. It had been necessary to administer twelve grains of morphia sulphate in the preceding twenty-four hours to secure the least quiet.

On the morning of June 15th, in the presence of Drs. Wheelan, Dozier, Dnncan, Wyman, Shoemaker, Drennan, Dr. Brice M. Hughes and myself assuming the case—which Dr. Cooper kindly proffered us—immediately proceeded to do a laparotomy to secure the internal iliac artery for relief and cure of the aneurism. The patient being anæsthetized, and the abdomen being shaved and thoroughly cleansed, the usual curved, lateral incision was made. The muscles and fascia having been divided carefully, at the inferior angle of the incision, the epigastric artery, displaced a very little to the right, was seen pulsating strongly, which was doubly ligated before section. The peritoneum was carefully divided on the finger as a director, and the hand was passed into the abdomen. The arteries could be felt in their usual places pulsating strongly, trunks in good condition. That of the common iliac was normal, while that of the internal iliac was about two inches long, the trunk large, and the walls in fine condition. The aneurismal tumor did not extend into the pelvis. Such being the condition, we determined to place a strong silk ligature on the internal iliac. So violent were the efforts of the patient, and such the difficulty of manipulation within the cavity that a few coils of intestines were taken out and swaddled in cloth, saturated in a warm carbolized solution. While I exposed and guarded the parts, Dr. Hughes divided the arterial sheath, which I separated from the trunk as he passed the armed needle. The ligature was then tightened, and all present satisfied themselves that all blood-flow through the tumor was checked. The artery was then firmly ligated, and the peritoneum approximated over the ligature. The cavity was next thoroughly cleansed and closed by six deep silver-wire sutures and six small superficial catgut sutures. There were a few points in the divided muscles that gave us a little trouble from oozing, but this was controlled by warm water and torsion. The incision was dusted with iodoform, while adhesive strips to support suture, antiseptic cotton, and binder applied evenly constituted the dressing.

Progress of the Case.—Morphia sulphate in quarter-grain doses were administered every four hours subcutaneously. Crushed ice with a little milk was allowed during the first week; patient kept in the dorsal-decubitus position strictly. The temperature on the evening of the operation reached 100.5°, but never again reached that point; after the evening of the fifth day it was absolutely normal; pulse ranged from 90 to 108. The incision united by adhesion throughout, and the dressing, which was removed on the sixth day, was perfectly clean, except at a single point where there was a clot of dried blood as large as a split pea. Sutures removed on the ninth day, union firm. A free, natural movement of the bowels on the tenth day. A small abscess formed on the thirteenth day, a little to the right of the incision, due to the hemorrhage from the veins above mentioned, most probably; all pain immediately stopped in the tumor, and it has gradually diminished in size and tenseness. The condition of spastic rigidity never returned after recovery from the anæsthetic, nor did the muscular spasm; leg became freely movable after the tenth day. On the twentieth day tumor about one-third of original size. Patient walking on crutches, free from pain, cured.

In reviewing the history of this interesting case as it is given, it seems that the operator did not intend, before the operation, to do a laparotomy in the sense of removing the contents of the peritoneal cavity as a preparatory step to the ligation of the internal iliac, but that this most important feature of the whole plan was an after-thought, or the result of an accident. The incision which he mentions as "the usual curved lateral incision," must be either Sir Astley Cooper's or Abernethy's, as it is not the one which would be made if it were intended first to remove the intestine before ligating the artery. Later on the operator mentions, "so violent were the efforts of the patient, and such the difficulty of manipulation within the cavity, that a few coils of intestines were taken out," thus giving his readers to suppose that it was not his intention to remove the intestine, which is the main feature and first stage of the operation of tying the internal iliac artery by the new method. It is the intentional removal of the intestine by the median incision, for

the purpose of fully exposing the pelvic vessels, that laparotomy is recommended as a preparatory step. The case, however, stands as one of the few successful, and places on record another case of cure of a spontaneous gluteal aneurism by the application of the Hunterian principle.

The friendly criticism which I have offered in no way detracts from the credit due to the operator or to the successful issue of the operation, but it has been made only to impress clearly the fact that the great object of the laparotomy is to remove the contents of the peritoneal cavity, and thus enable the surgeon to ligate the vessel without incurring any of the risks so common by the older incisions and by the older methods.

As many of the causes of death in these cases of ligation of the internal iliac artery are due to the fact that the operation cannot so safely be performed without the removal of the intestine, it therefore follows that the removal of the intestine preparatory to ligating the vessel is an essential feature in the entire plan to be carried out in the treatment of gluteal aneurism.

Case III. *Gluteal aneurism, associated with an aneurismal varix; laparotomy; ligation of left internal iliac artery; recovery.*—M. F., aet. eighteen, domestic; admitted to St. Vincent Hospital, August 26, 1886. Family history good and no evidence of specific disease. Patient has noticed for many years that her left buttock was much larger than the right, and that in this enlarged buttock she experienced a good deal of pain. Until three weeks previous to admittance to hospital, patient was able to work about; but at that time the skin became ulcerated over the left buttock. The patient now began to have great pain, and was unable to assume the sitting posture. Whenever she tried to sit down she felt a throbbing in the tumor.

On admission patient is well nourished and muscular. Complains of heat, throbbing, and pain, but more especially of the latter, which is no longer localized, but shoots down toward the knee. She states that her bowels are usually constipated, but in other respects physical condition is good. Heart and lungs normal.

On examination the left buttock is found to be considerably enlarged, the ulcer mentioned above being situated about the centre of the tumor. The veins are visibly dilated, those situated at the most dependent part of the tumor are markedly engorged, and upon gentle palpation the blood is felt surging through the vessels, which shows that a communication exists between the artery and the vein. With each systole of the heart an expansile pulsation is quite evident. Upon auscultation a very loud bruit is heard, which follows closely upon the first sound of the heart.

Examination by the abdominal wall and rectum negative.

Aug. 27. Potassæ iodidi grs. xv t. i. d.; liq. morph. n. s. ʒj, when needed.

Sept. 7. Examination of urine negative. Pil. colye. co. iij. Light breakfast.

8th. Patient etherized. Abdomen thoroughly cleansed and shaved. An incision was made in the median line, starting at the umbilicus and extending downward to within two inches of the symphysis. Having dissected down to the peritoneum, all the vessels that required attention were ligatured. The peritoneum was now lifted up and snipped, a director being introduced, the membrane was divided upon it. The incision was not at first extended beyond the umbilicus; but the abdominal walls were so very thick with adipose tissue that the original incision was extended some distance above the umbilicus. The contents of the peritoneal cavity were easily removed, and abundance of room was obtained for the subsequent steps of the operation.

In the first case of gluteal aneurism the patient was emaciated, and the walls could be drawn aside without extending the incision higher than the umbilicus. The intestine was removed outside of the abdomen sufficiently to allow the exposure of the vessel, the bowels being protected by the application of towels and flat zymoca sponges soaked in a warm, weak solution of bichloride of mercury. The index finger felt the pulsation of the common iliac, then its bifurcation, and the external and internal iliac. The ureter was drawn aside, the peritoneum and sheath opened sufficiently to admit the point of the aneurism needle, which was passed from within outward. A double twisted catgut ligature was employed, and the ends cut off, after which a thin layer of iodoform was dusted over the knot of the ligature. The intestine was carefully replaced, the peritoneum and the other structures were stitched. A small drainage tube was introduced between the lips of the wound, iodoform was sprinkled over the linear incision, and antiseptic dressings were then applied. In closing the abdominal wound deep and superficial sutures of catgut, and three interrupted sutures of silver wire were employed.

No nausea or vomiting followed the operation. At six o'clock patient had recovered from the shock and appeared to be in a most comfortable condition.

9th. Patient had a good night and slept after a hypodermatic injection of morphia was given. During the day patient complained of some pain, and there was some tympanites. The ice coil was placed over the abdomen, and her pain was diminished. The urine was passed without the use of the catheter; it contained fifteen per cent. in bulk of albumen. The tongue was dry.

10th. Patient had another good night. Tongue cleared up and moist. The amount of urine passed during the day was nearly two pints, and it contained only a trace of albumen.

11th. The pulse and temperature to-day are below one hundred. Patient has been fed on peptonized milk, which was administered in the form of an enema during the first twenty-four hours subsequent to the operation. The urine contained no albumen and the quantity was normal.

12th. Dressings removed. Wound appeared healthy, with only a slight discharge upon the deep dressings.

13th. Patient had a normal movement from the bowels.

15th. Patient's condition is in every way satisfactory. The wound healed by primary intention,

except near the centre for a little distance, where the incision healed by granulation. The bowels moved after the 13th instant at regular intervals, and with the exception of cramps occurring after the movement, there is nothing of importance to note.

Remarks.—This patient rallied quickly after the operation, and on the fifth day following the laparotomy the bowels moved, and continued after this time to assume their normal function. The albumen, which was not present in the urine previous to the operation, amounted to fifteen per cent. in bulk within twenty-four hours, but all traces of it quickly disappeared from the urine. This acute albuminuria was due to congestion of the kidney, as a result of the ligation of the main trunk of the internal iliac.

With regard to the aneurism, no pulsation ever occurred after the ligature was applied. The aneurismal varix was also completely cured. The ulcer healed, and the parts returned to nearly their normal size and shape. The patient is now discharged from the hospital cured, and expresses herself as feeling perfectly well.

After recording in detail the history of these interesting cases, a final summary seems appropriate in regard to the advantages of this method of treatment over the older methods, restricting, of course, this method of operating to the cases of spontaneous gluteal aneurism.

First. Laparotomy in no way increases the dangers of the operation of ligation of the internal iliac artery.

Second. Laparotomy prevents a series of accidents which have occurred during the performance of the operation of ligation of the artery by the older methods. Among these accidents may be mentioned the division of the circumflex and epigastric arteries, wounding the vas deferens, including the ureter in the ligature, puncture of the iliac or circumflex veins, tying the genital branch of the genito-crural nerve, stripping up and tearing the peritoneum, injury to the subperitoneal connective tissue, and other accidents of a like nature.

Third. Laparotomy enables the surgeon to apply the ligature at a point of election, and affords him an opportunity of obtaining information as to the exact extent of disease in the main arterial trunk.

Fourth. Laparotomy averts the dangers which were likely to follow ligation of the internal iliac artery by the older operations, among which may be cited peritonitis resulting from tearing up the peritoneum posteriorly, cellulitis, purulent œdema, pelvic abscess, septicæmia, and pyæmia.

Fifth. Laparotomy occupies much less time for its performance in order to expose the internal iliac artery than was occupied to reach the vessel by the incision of Abernethy or Sir Astley Cooper.

Finally, it may be said that the only real obstacle to the successful issue of the operation of ligation of the internal iliac artery for the cure of spontaneous aneurism of the gluteal artery lies in the prevention of acute albuminuria. To this point in the clinical history of the operation the attention of surgeons should be directed. The solution of the difficult problem is only to be obtained by experimental observations made upon the lower animals, and when measures are discovered that will obviate and remedy this unfavorable complication, the treatment of spontaneous gluteal aneurism by laparotomy and ligation of the internal iliac artery may be considered under the control of the surgeon.

THE RELATIVE VALUE OF CULTURES IN LIQUID AND SOLID MEDIA IN THE DIAGNOSIS OF BACTERIA.

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THE marked progress recently made in the study of microörganisms as the cause of certain diseases is, without doubt, due to the more thorough application of various solid culture media by Koch and his pupils. To-day the microscope does not hold the chief place in the study of these minute organisms. It is their mode of growth upon gelatine, blood serum, agar-agar, potato, in meat infusions, milk, etc., or the absence of growth in one or more of these substances and in these fluids which aids in confirming the microscopic examination. For this frequently yields results so indefinite that, without the media mentioned, it is impossible to come to any satisfactory conclusions as to the kind of bacteria under consideration. Besides these various tests, inoculation experiments upon animals are of essential importance in the investigation of pathogenic forms.

In connection with the cultivation of bacteria for diagnostic purposes, it is again desirable to call attention to liquid media and their uses. The statements of Koch and others, several years ago, concerning the unreliability of liquids, have almost driven them from the field in Germany, and in our own country.

Pasteur, the founder of this new and brilliant branch of pathology, made cultures in meat broths or decoctions exclusively. That grave errors may arise in this way through contaminations which cannot be easily detected, is self-evident. When gelatine and other solid media were introduced by Koch, he discarded cultures in liquids, except for very special purposes. Since that time they have been looked upon with distrust, and results obtained with their aid suspected and questioned.

If there were some means of keeping liquids free from contamination, it is not unfair to say that they would be better adapted as a natural medium of bacterial life than any solid media ever suggested. This is self-evident for germs endowed with motility. One of the advantages of solid media consists in the fact that any after-contaminations are quite easily detected with the unaided eye. This is not so readily done in the case of liquids. There are two ways of overcoming this difficulty: 1. By the use of a culture-tube in which the parts are so adjusted that a momentary exposure for purposes of inoculation, etc., is practically without any danger whatever. 2. By frequently testing liquid cultures on solid media, preferably on nutrient gelatine. My experience with the culture-tube devised by Dr. D. E. Salmon has been entirely satisfactory. Its efficiency may be considered quite perfect. As it has been

fully described,[1] I need not dwell upon it here. The testing of liquid cultures is very simple, and quickly accomplished. Either a minute portion is shaken up with liquefied gelatine, and the mixture poured on glass plates, or a platinum wire, previously dipped into the culture liquid, is drawn several times across a layer of gelatine not yet congealed. In either case, the developing colonies will determine the purity or impurity of the liquid culture. I have almost invariably found the thirteenth or fourteenth generation as pure as the first, when tested in this way. I should be surprised to find one out of every hundred tubes impure.

I will grant unreservedly that test-tubes plugged with cotton-wool are not fit for liquid cultures. For gelatine in such tubes, when frequently exposed, is invariably invaded after a time by fungi or bacteria. The plug being a nidus for dust, its removal is always attended with danger. Because a culture-tube which eliminates the use of a large, removable plug is more costly, it does not follow that it is not valuable in scientific research. We know that in the departments of physics, chemistry, and physiology, the most advanced work is of necessity performed with the most complex apparatus. That there are those who do not succeed in keeping liquid cultures pure, does not concern those who do. It behooves the former, in the interest of a true scientific spirit, to improve their apparatus and technique, instead of condemning the method.

Conceding then, for the present, that cultivations in liquids can be kept free from contamination, the point at issue is the employment of liquids for diagnostic purposes. Whoever has paid any attention to the multiplication of bacteria in nutritive fluids has, no doubt, been surprised at the variety of features which present themselves, and at the regularity with which the same ones appear in cultures of the same microbe. To illustrate how many different characters may be used in determining the kind of bacteria, and the purity of the cultivation, I will briefly outline a few of the most important ones, as they have come under my own observation, referring the reader to Miquel[2] for the characters of bacteria obtained from the air, soil, and water.

Every cultivation made in a tube shaped like a test-tube presents three regions for observation—the liquid itself, its surface, and the bottom of the tube. In other words, there may be a membrane covering the liquid, and a deposit in the bottom. With reference to the liquid itself, it may remain clear or become clouded. In the former case, the growth may appear as a membrane, or a deposit, or it may be disseminated through the fluid in minute granules, flakes, or cloud-like masses. The cloudiness may be very faint—a mere opalescence—or it may be very dense, approaching a turbidity. When shaken the cloudiness may be, as it were, set in motion, and thus show itself composed of elements indistinguishably minute, or as granular and flocculent masses: or it may be impossible, by shaking, to disturb the uniform opalescence. The liquid may become colored. There may, or may not, be a membrane on the surface of the liquid. When present, it may vary from a mere iridescent pellicle to a thick, creamy layer. Its formation and growth should be carefully noted, together with its color, consistency, and structure, when fully formed. The deposit may be absent, very scanty, or quite abundant and colored. When agitated, it will rise from the bottom in coarse or fine flakes, as a viscid, ropy mass, or as a fine powder. In connection with these characters, it is necessary to take into consideration the composition of the culture liquid, and its reaction. The temperature to which the culture is exposed has a marked effect on the rapidity with which these characters appear. The odor and reaction of the culture of a certain age are also instructive in many cases.

When these various features, and many others not given above, are taken alone and in combination, we have, for most cultures, an almost positive means of diagnosis, as well as a ready method of detecting contaminations, for these features are, as a rule, constant. In order to illustrate this statement, I will write down a few features of the growth of *bacillus subtilis*[1] in a neutralized infusion of beef, to which one per cent. of peptone has been added.

In a temperature of about 35° C., the liquid becomes opalescent in from six to eight hours. When agitated, rolling, cloud-like masses are outlined by a condensation of the suspended bacteria. Within twenty-four hours an interlacing network, or islands of a whitish, gelatinous deposit, appear on the surface, which, within another day, are fused into a white, papery membrane, covering the entire surface. This membrane, which is not smooth, but puckered and pouched in a peculiar way, soon pushes its border up the sides of the tube, resembling, at this stage, the cup of an acorn. The liquid itself gradually clears up in the meantime, until it is quite as limpid as before inoculation. This clearing up of the liquid, together with the puckered, cup-shaped, papery membrane, is very characteristic of this bacillus, certainly as reassuring to the observer as the stellate growth of its colonies on gelatine. For, if another microbe be present, the liquid remains clouded, and the membrane is modified. There are many other points of interest in connection with the membrane, and the deposit forming later, which I forbear to mention here, as their value for diagnostic purposes is limited by their tardy appearance.

If we now turn our attention to solid media, we shall find that diagnosis often fails when the bacteria do not liquefy the substratum. The colonies then are apt to develop very much alike, and any modifications may as well be credited to change in the consistency of the gelatine, due to variations in temperature, to drying, etc. These same changes will modify the appearances of colonies of the same microbe. Tube cultures in gelatine of radically

[1] First Annual Report of the Bureau of Animal Industry, Department of Agriculture, 1884, p. 229. American Monthly Microscopic Journal, 1884, p. 185.

[2] Annuaire de l'Observatoire de Montsouris pour l'an 1885, pp. 577 et seq.

[1] This bacillus can be obtained pure at any time, by boiling in a water-bath, for from one-half to three-quarters of an hour, a filtered infusion of hay, contained in a flask plugged with cotton-wool.

different bacteria are frequently almost identical in appearance, or the slight differences are found not constant. In such cases, cultures in fluids are frequently of great service. In a paper[1] recently read before the American Association for the Advancement of Science, I called attention to two pathogenic forms, identical microscopically, and in their effect upon animals, though found in widely separated sections of our country. One of the few differential characters was the presence of a membrane in the liquid culture of one germ, its absence in the other.

The great importance of solid media in isolating bacteria, and testing the purity of cultivations, is conceded by all engaged in this field of research. The advantage of starting cultures from a single germ, by inoculating them from the colony, its progeny, is inestimable in obtaining accurate and reliable results. But that liquids have also a place, and a very important one, the facts above stated will, I hope, demonstrate beyond a doubt. It seems a pity, therefore, that we should be blindly following in the wake of some general statements which tend to deprive the study of microörganisms of an exceedingly valuable accessory.

That they have as yet but little recognition in the country where microörganisms are receiving most attention to-day, is illustrated by the recent issue of a book,[2] in which are given all the well-known culture reactions, excepting those in liquids, of the best known bacteria. I venture to maintain that the characters of the liquid cultures of some of the bacteria there tabulated are worth as much from a diagnostic standpoint as all the rest combined. It is, in fact, a matter of common observation, that, for many bacteria, cultures on agar-agar and blood serum offer scarcely anything different from what is observed on gelatine. In the first two editions of Hüppe's *Bakterienforschung*, very little is said of liquid media. In the third edition there is a decided improvement. Several pages are added, giving recipes for the preparation of nutritive meat infusions. The author also quotes from Miquel a number of characters which liquid cultures may present, and which may serve as a means of differential diagnosis. It is to be hoped that a fourth edition of this very excellent and impartial handbook will give a still ampler space to this subject.

I am happy to quote from an author so well versed in bacteriological technique as Miquel,[3] in support of the statements made in these pages. In fact, they would appear as a mere echoing of his own, if the conclusions there recorded had not been reached before the publication of his remarks, and in part written before my attention was called to them. He says: "I have been one of the first to recognize that solid substrata offer a ready means for the separation of species. But I consider it puerile to apply a particular method to all kinds of experimentation." After giving some of the diagnostic characters of liquid cultures referred to above, he concludes by saying: "I fear that I shall abuse the patience of the reader in continuing still farther the enumeration of the advantages which it (bouillon) offers over gelatine for the microscopic diagnosis of species. . . . . It is said that species are easily recognized in cultures on gelatine with the unaided eye, and that cultures in liquids do not possess this advantage. Such a statement denotes profound ignorance. To my knowledge there are not two bacteria that develop alike in beef broth, for example."

That every one studying microörganisms should familiarize himself thoroughly with the manipulation of cultivations in liquids, and the characters which they present, so that impurities may be detected, becomes self-evident when we reflect that most of the biological properties of bacteria can be observed only in liquids. "With cultures in liquids it is possible to study the biological phenomena of fermentation, to analyze gases set free, to collect the soluble ferments diffused through the fluid, to determine the formation or disappearance of certain substances. I doubt very strongly whether such things could ever be done with liquid cultures.[1]" To these may be added the study of ptomaines, of such great interest to the pathologist. Inoculation experiments are also much simplified, and the dose is very easily regulated.

Considering these important facts, the views of the unbiassed investigator should be directed to the employment of whatever is truly serviceable, whether it be of French, German, or American origin. The future will decide still more clearly the relative merits of solid and liquid culture media, and range them side by side, for both have become indispensable.

[1] The Medical News, September 18, 1886, p. 338.
[2] Eisenberg, Bakteriologische Diagnostik, 1886.
[3] loc. cit.

THE NASAL REFLEX.
A NEW METHOD FOR DETERMINING THE LOCAL SENSORY ACTION OF DRUGS.
A PRELIMINARY NOTE.

By THOS. J. MAYS, M.D.,
of Philadelphia.

It is not, as it is generally believed to be, comparatively easy to distinguish between the local sensory and motor action of drugs; and it becomes especially difficult when, in other respects, the action of two drugs is quite analogous. The methods hitherto in use of applying a solution of the drug to the skin of a frog, and then testing the reflex irritability of the same; or of immersing one leg in the solution and then comparing its reflex sensibility with the other by means of mechanical, thermal, or electric stimulation, do not always yield satisfactory results. Hence, in the hope of adding something that may facilitate research in this new field of medicine, I submit the description of a method which is both simple and reliable.

Five or six drops of a one or two per cent. solution of the drug to be tested are slowly dropped, either from a dropper, or from a hypodermatic syringe into one nostril of a good-sized frog at intervals of from three to five minutes, and the nasal reflex

[1] Loc. cit.

is tested by introducing the end of a very light wire (such as is used to keep a hypodermatic needle pervious) into the nostril under the influence of the drug, as well as into its fellow on the opposite side and the effects compared. The nasal reflex is extremely sensitive, and shows the slightest interference with its integrity. As soon as the wire comes in contact with the inner surface of the nostril in its normal state the frog will wink and wince, and make efforts to brush the offending body away with the front foot; while after the instillation of ten or fifteen drops of a drug solution which has the power of obtunding sensibility, the frog will not only allow the wire to remain in the nostril, but will endure considerable boring with it before he evinces the slightest pain. After the nostril is fully under the influence of the drug, reflex sensibility is annihilated on that side, while the sensation of the opposite nostril remains intact.

This method, which I have called the nasal reflex method, has been used by me in determining the difference between the local action of theine and of caffeine, and this, I think, is a sufficient guarantee of its delicacy and accuracy.

MEDICAL PROGRESS.

SHOEMAKER'S ULCER.—DR. DANFORD THOMAS has called attention to this peculiar form of industrial disease. While holding an inquest recently on the body of a shoemaker who had died suddenly at Queen's Road Station, Bayswater, from the bursting of an ulcer in the stomach, Dr. Thomas said it was a pity that shoemakers persisted in pressing the boot to the stomach when engaged on their work, for the pressure was apt to produce an ulcer. We are informed by Dr. Lomas, an excellent authority on the subject, that a very large number of shoemakers suffer from stomach diseases. Some years ago an upright bench for shoemakers was exhibited by the Society of Arts, which, it is believed, is now used in many boot factories. The repairers of boots and shoes are the people who still carry on their work in the old way. In hospitals and dispensaries, he has met with some cases of hæmatemesis from pressure over the stomach. As a class, shoemakers are not healthy; many of them become very feeble at the age of forty or fifty.—*British Medical Journal*, October 30, 1886.

ON URÆMIC HEMIPLEGIA AND HEMORRHAGIC OTITIS IN THE COURSE OF BRIGHT'S DISEASE.—DEWÈVRE, in the *Lyon Médical*, No. 40, Oct. 3, 1886, records the following case: A tall muscular soldier, aged twenty-one years, was struck with complete left hemiplegia and aphasia. There was no history of any hereditary taint or excesses. Two years previously he had suffered from scarlatina, with nephritis and anasarca. At the end of fifteen days the urine was normal, but he felt constant dyspeptic troubles, cramp of the limbs and back of the neck, and palpitation on exertion. The left arm was less affected than the leg, and the face only slightly paralyzed. Taste and sight were not affected, but the pupils were greatly dilated. There was intense frontal headache, nausea and dryness of the tongue, with constipation and suppression of urine. The heart and circulation were normal, but the respiration was anxious and of Cheyne-Stokes character, and crepitant râles accompanied a difficult expectoration streaked with blood. Frequent epistaxis took place, and a week after the attack there was some bleeding from the left ear, and the patient complained of tinnitus and of distressing pulsation on the left side of the head. There was complete deafness of the left ear, and the membrana tympani very red. The mastoid was red and œdematous, but not painful to the touch. The sero-sanguineous discharge from the ear became purulent. Two months later a perforation was observed, but the hearing returned and all pain ceased. The urine contained a little albumen.

Various authors have called attention to the occurrence of hemorrhage in the middle ear during Bright's disease and diabetes, and Dr. Dewèvre points out that the symptoms are in exactly the reverse order to purulent affections producing secondary cerebral complications.

CONTRACTURE DIATHESIS, PARTICULARLY THE CONTRACTURE PRODUCED IN HYSTERICS BY THE APPLICATION OF A LIGATURE.—Charcot has given the name of *Diathèse de contracture* to a special nervous state which is neither contracture nor paralysis, but which at the same time contains a little of both. The author of this paper, M. Berbez, says they were led in the following manner to note the frequency of the contracture diathesis in hysterics at least. M. Charcot gave a lecture on intermittent limpness (*claudication*), caused by obstruction, more or less complete, of the arteries of a limb, and ascribed to local ischæmia, the rigidities, the contractures more or less prolonged, which supervened in the ischæmic muscles. Wishing to verify this hypothesis, M. Charcot applied on many of the *externes* Esmarch's band without obtaining contractures. In this state of ischæmia the muscles were exhausted by the patient being made to squeeze the dynamometer, but even then contracture did not supervene. Very different, however, were the results obtained by experimenting on hysterics. All, or nearly all, of them developed contracture with the first turn of the band. This led Charcot to think that ischæmia was not the cause of the contracture. They applied the band from the tip of the fingers to the wrist, then at the elbow, then the band was carried as high as the insertion of the deltoid. In all these cases the contracture was produced, and rose with the height to which the band was carried. Then the band was applied to the middle part of the forearm or limb, and contracture followed in the same way. The contracture which the circular band produced disappeared nearly always after its removal. In two cases it became more generalized—once over the whole body, in another to the right side. In some minutes the contracture invaded the four limbs in a young woman, who came as an out-patient, and to whom the band of contracture was applied in the middle part of the right forearm. General massage used at once made the rigidities disappear completely. This forms an easy and prompt method of discovering the contracture diathesis and hysteria in cases of difficult diagnosis.—*Edinburgh Medical Journal*, November, 1886.

ANTISEPTIC OBSTETRICS IN VIENNA.—From an elaborate paper by EHRENDORFER (*Archiv f. Gyn.*, XXVII.

2), we reproduce here simply the results from Spaeth's Clinic, where the antiseptic means depended on are carbolic acid and iodoform. The figures from this clinic are analyzed with great care, the history of each septic or otherwise fatal case being given in abstract. We reproduce the figures for each year separately:

In 1882 there were 2898 confinements. Total corrected mortality for clinic, 0.51 per cent.

Since the puerperal mortality in any clinic will, in a measure, go hand in hand with the abnormalities and complications occurring, we note a few of these:

116 miscarriages; 35 twin labors; 16 face presentations; 59 forceps operations; 23 versions; 3 embryotomies; 2 decapitations; 1 Cæsarean section; 12 craniotomies; 7 placentæ prævíæ.

And further we note that, during this year, 211 students had the privileges of the wards, and were instructed in the touch and in delivery.

In 1883, there were 2669 confinements. Mortality, 0.33 per cent. Of complications and interference we note: 54 forceps; 90 extractions pelvic extremity; 24 versions; 21 manual removal of placenta or secundines; 8 craniotomies; 90 miscarriages.

During this year there were 381 students in attendance.

In 1884, there were 2788 confinements. Mortality (corrected), 0.32 per cent. (including two Porro cases and one Cæsarean section—uterine suture).

The complications, etc., were similarly large, and the students in attendance numbered 324.

The figures for puerperal morbidity during these three years were: 1882, 4.31 per cent.; 1883, 3.59 per cent.; 1884, 3.08 per cent. In particular, were the results for 1883 better than those for 1882, seeing that in the former year there were 390 operations against 340 in the latter, and the number of students in attendance was also greater.

(The above results, be it remembered, were obtained in a clinic in an old hospital, and where the material was largely used for purposes of instruction.)

Ehrendorfer then describes Spaeth's clinic, and formulates the antiseptic rules which are rigidly adhered to. (It seems profitable to reproduce briefly these rules here, since, in all probability, the good results obtained may fairly be said to depend on the antisepsis resorted to. And whilst we do so, we do not mean to imply that just as good results may not be obtained in private practice without such rules. Indeed, we believe them unnecessary in private practice, where all that is requisite is through cleanliness, which may be obtained without antiseptics. There is a vast difference, however, between private and hospital practice.)

The rules in brief are: Before any vaginal examination, hands must be cleansed with soap and brush, and then dipped in from one to five per cent. carbolic. Examining finger smeared with three per cent. carbolized vaseline. Neither before nor after an examination is vaginal douche given, unless there be special ground therefor, fever and bad discharge, etc. After a normal, spontaneous labor, the external genitals are washed with one to two per cent. carbolic. After intrauterine manipulation, the uterus is washed out with one or two litres warm, one to two per cent. carbolic. After dead-born fœtus (decomposed), or difficult instrumentation, an iodoform pencil is, in addition, used. Episiotomy wounds, if not deep enough for suture, are simply dusted with iodoform, and similarly slight perineal ruptures. During the puerperium, unless especially ordered, neither vaginal injections nor antiseptic compresses. As soon as the lying-in woman has elevation of temperature, she is isolated. Each ward is carefully disinfected when empty. In case of rise of temperature, if there are wounds of the outer genitals, vaginal injections, one to two per cent. carbolic; if the lochia are bad-smelling, intrauterine douche twice daily, or else iodoform pencils. The douche is stopped as soon as the lochia become normal. Continuous irrigation never used. Iodoform freely on all wounded surfaces.

At Spaeth's clinic, in brief, the puerperal uterus is not considered in similar condition to an amputation wound. The aim is to prevent infection from without, and this is attained by cleanliness, weak carbolic solutions, iodoform, and *leaving the patient alone* unless operative measures have been resorted to, or symptoms arise calling for the vaginal or intrauterine douche.

A valuable summary of the literature of puerperal fever, and clinical reports bearing on this disease, are appended.—*American Journal of Obstetrics*, Nov. 1886.

A Case of Tubercular Inoculation in an Infant.—Syphilis has frequently been conveyed by the process of sucking the wound in ritual circumcision, but the communication of tuberculosis in the same manner has been met with more rarely, and is less known. There are on record two cases observed by Lindmann and twelve by Lehrmann, but without examination for bacilli. Elsenberg, a Polish doctor, relates the following: A priest suffering from tubercle of the lungs and of the larynx, with bacilli in his sputum, had circumcised an infant. When seen, at the age of five months, the wound in the penis had become transformed into an ulcer, covered with a yellow and adherent deposit. There was a hard nodule in the prepuce near the foreskin. On both sides the inguinal glands were much swollen, and from an opening in the left side there escaped an opaque serous fluid, containing caseous particles. In the mastoid region in the right side was a large fluctuating abscess. The other lymphatic glands were unaltered. The child died of erysipelas and tetanus, after the removal of the caseating glands and the opening of the mastoid abscess. Numerous tubercle bacilli were found in the ulcerated prepuce and caseous lymphatic glands.—*Edinburgh Medical Journal*, November, 1886.

The Duration of Infectiveness in Scarlet Fever.—In the Section of Public Medicine at the annual meeting of the British Medical Association in Brighton, Dr. H. Ashby spoke as follows:

In reviewing the character of the cases discharged which have apparently infected others, one finds a certain number in which it is very difficult to explain the cause of their retaining their infectiveness beyond the usual time. Some cases have occurred in which especial pains have been taken to free them from infection, and who have been retained till the end of the seventh week, and in one or two cases beyond this period, on account of their belonging to a family in which there were many children, and yet a reinfection of the household followed in a few days after their return home. These exceptional cases it is difficult to explain, unless one takes refuge in the belief that the infection must, in some way or other, have been conveyed from the fever

ward to the household by means of the person or clothes, rather than by any infection given out by the patient himself. Our experience plainly shows that cases of fever attended by such complications as nephritis, empyema, otitis with discharge of pus from the ears, and suppurating glands, retain their infectiveness for a longer period than do uncomplicated cases of slight or medium severity. On one occasion, a case of empyema following scarlet fever was transferred from the fever to the general wards on the forty-ninth day; and on opening the chest antiseptically, and evacuating the pus, was followed, within forty-eight hours, by the nurse who attended it having an attack of scarlet fever, and two other cases in the ward. As an interval of several days elapsed after removal and before operating, it seemed most probable that the pus contained infecting materials. In some of our cases which have inadvertently been sent out with discharges from the ears or glands, it has appeared to me to have been the means of infecting others. I believe, also, that cases of scarlatinal nephritis retain their infectiveness for a lengthened period, the infection being, doubtless, given out in the urine. I have seen such cases which were quite free from desquamation, and having suffered from a mild attack of scarlet fever many weeks before admitted to a general ward, their admission being followed by an outbreak of scarlet fever. In such cases, however, it must be remembered that their urine is carefully saved, standing about in the ward for many hours, and is, consequently, more likely to infect than if thrown away at once, as urine would be in cases where no albuminuria exists. Concerning the desquamation, I may add that, while I believe in the importance of baths and ointments in order to remove the epidermis which has detached, yet I believe in the importance of removing every little tag of skin, or of rendering smooth a more or less roughened skin as having been much exaggerated. Probably the poison is stored up in the epidermis, and the exfoliating skin is capable of communicating the poison to others, but it can hardly be held that the skin monopolizes the whole of the poison to the exclusion of the internal organs, and, moreover, baths and external applications must assist in rendering the epidermis innocuous, while the internal organs more slowly give out the poison by means of the secretions and breath.

In conclusion, I venture to summarize my paper as follows: 1. If desquamation is complete, convalescent scarlet fever patients may be discharged at the end of the sixth week, though, in order to secure absolute immunity from infection, it is wiser to delay till the end of the eighth. 2. Cases complicated with nephritis, empyema, otitis, or glandular abscesses should be detained until the cure is complete. 3. That while it is important that desquamation should be as complete as possible, the detention of patients beyond the eighth week, in order that the epidermis should be removed upon the soles of the feet, etc., is unnecessary.—*Brit. Med. Journal*, Oct. 30, 1886.

Fatal Result of Peroxide of Hydrogen Injections.—A Norwegian surgeon, Dr. Laache, has reported a case in which a fatal result followed an injection of peroxide of hydrogen into the pleural cavity. The patient was a man twenty-eight years of age, who had had a portion of the ninth and tenth ribs resected for empyema. The operation had been successful and the wound progressed favorably, and two months after the operation there remained only a fistula about an inch and a half long. In order to hasten the healing of this, hypodermatic injections of a three per cent. solution of peroxide of hydrogen were resorted to, as this method of treatment had given very satisfactory results in two somewhat similar cases in which it had been tried. Six injections, each containing 0.8 cubic centimetre of the solution, were administered without any particular effect. At the seventh, however, the patient complained of pain and faintness, the pulse failed, the respiration became oppressed, clonic contractions occurred in the right arm, the head turned to the left, the jaws became tightly set, the face became cyanotic, and the patient died in ten minutes. The necropsy, which was not made till forty-eight hours after death, revealed nothing very striking. The heart was dilated, and contained liquid blood without air bubbles; some ecchymoses were found in the parts of the left lung which were adherent to the chest walls. In the fourth ventricle of the brain an ecchymosis the size of a pin's-head was seen. A number of air-bubbles were present in the blood of the hepatic veins, and some were seen on cutting into the spleen and kidneys. The cause of death was, therefore, by no means clear. Dr. Laache suggests that it may have been the small extravasation in the fourth ventricle or shock. Dr. Wulfsberg, who took part in the discussion on the case at the Christiania Medical Society, thought it was probably due to the introduction of the drug into the circulation. He stated that the strength of the blood-current might have carried the peroxide, if introduced into a vein, through the right heart and lungs almost unchanged, but that afterward more oxygen might have been disengaged than the blood could absorb, and bubbles were thus produced, which may have been the immediate cause of death. Where animals have been subjected to injections of air into the veins bubbles are not always found in the blood. In these cases Dr. Wulfsberg thinks that death has been due to paralysis of the heart, for when examinations have been made immediately after death bubbles have been found in the coronary arteries. As so long a time had elapsed before the necropsy in Dr. Laache's case, these might have been absorbed.—*Lancet*, October 9, 1886.

Measurements of Body Surfaces.—According to some measurements made by P. Putilov, of Omsk, the surface of a man's head is 27 times as large as that of an average child at birth, while the trunk and the upper and lower limbs have respectively 7.5, 7, and 10.8 times the superficial area in the adult that they have in the infant. The mucous membrane of the respiratory apparatus appears to increase much more than that of the œsophagus, the former measuring 13.5 times as much in the adult as in the infant, while the latter only measures 4.7 times as much. The stomach is 50 times, and the small and large intestine 18 and 22 times, as large. The internal surface of the digestive canal is given as 1200 sq. cm. in the baby, and 18.300 sq. cm. in the adult, and the surface of the liver is 199 and 774.5 sq. cm. in the two bodies respectively, that of the adult being 3.9 times that of the baby.

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CASTRATION OF WOMEN IN NERVOUS AND MENTAL DISEASES.

A LITTLE more than ten years ago, Battey in the United States and Hegar in Germany almost simultaneously removed the ovaries in order to determine the menopause, with the hope of curing serious disease that had baffled other treatment. Although this operation is so recent, it has been performed hundreds of times, and its literature has become vast. Removal of the ovaries, or of the tubes, is a frequent subject of discussion in medical societies and journals, both at home and abroad, and indeed, some of the obstetrical societies are becoming chiefly remarkable for the comparative absence of consideration of obstetric subjects, while the monthly *ménu* is almost sure to include ovaries or tubes, or both, until one becomes somewhat weary of these articles, or is ready to suggest that there might be tubo-ovarian societies organized.

In the midst of many experiences and differences of opinion as to the castration of women, it was a wise and happy thought to combine, as has been recently done in the *American Journal of the Medical Sciences*, the views of three great masters in regard to the suitableness of the operation in mental and nervous disorders. In this symposium SIR SPENCER WELLS speaks first, then HEGAR, and, finally, BATTEY. For obvious reasons, we will in this brief notice begin with the statements of the last. We might truthfully add that he alone of the three "sticks to the text," Sir Spencer Wells's observations being, especially in some parts, quite discursive. Further, Battey alone presents facts, while the others deal in arguments and opinions. Yet, notwithstanding these undoubted merits of his contribution, it is somewhat disappointing. He has forsaken the position taken in his first communications upon the subject; he no longer holds to "normal ovariotomy," but claims that the ovaries which he removes are diseased, though, on the other hand, both Wells and Hegar regard castration as including removal of the normal ovaries.

Battey mentions the evidences of disease found in the ovaries which he had removed, but he gives only the gross appearances, and there is presented no study of the more minute pathological changes which establish the nature of the affection. Indeed, when we read in connection with his statement that of Emmet which is included in his paper, there is obviously needed a more complete demonstration of the alleged fact. Emmet's statement, referring to hundreds of post-mortem examinations which he had made, is that "Cystic degeneration was very common, and often the ovaries were found bound down by old pelvic adhesions, when, during life, not the slightest symptom had been given of any unusual local disease."

Battey gives the results in 36 cases upon which he has operated for epilepsy, mania, and ovaralgia: of which 23 were cured, 7 improved, and 6 not improved. He claims that patients who are not benefited the first year after the operation may, at the expiration of two or three years, prove soundly cured. This, we think, a very weak point, especially when such a claim is made in behalf of cases of ovaralgia. If one suffers from toothache, and the pain is not removed, but continues unabated after the dentist extracts a tooth, our conclusion is that he pulled the wrong tooth; and if we must wait two years for the pain to cease, we must naturally conclude that the cessation was spontaneous. Again, unless ovaralgia be different from neuralgic affections of other organs, it has no pathological anatomy yet demonstrated, and, therefore, if the ovaries removed in these cases presented obvious evidence of disease, may there not be some doubt as to the diagnosis of ovaralgia? Then, too, after the removal of the aching organ, is it right to call the pain still felt ovaralgia?

When we read the statistics given by the ardent friends of removal of the ovaries for mental or nervous diseases, the testimony being so generally favorable, we feel somewhat like the man who, after seeing virtues universally recorded upon tombstones, wondered where the bad men and women were buried; so we wonder who does the unsuccessful operations. Certainly there are very many of them; more, probably, than Dr. Battey is aware of: these unhappy women, in their disappointment and despair, do not return when they find their ovaries have been removed without the slightest benefit, to those who have removed them, but seek other counsellors, while the operators may honestly believe, because the

patients do not again consult them, a year or two afterward, that the cures have been complete. The danger of error from this source is real and great.

Battey gives as one of the forms of disease presented by the ovaries "a sort of sclerosis of the investing tunic," and "the stroma also presents a sort of fibrous degeneration." If we compare these statements of the gross appearances of the diseased ovaries with those given by Sappey of their normal structure, the necessity for microscopic study of the former is evident.

Hegar holds that "castration is indicated in a psychosis evoked or maintained by pathological alteration of the sexual organs, and in a neurosis originating from the same source, as soon as this imperils life or hinders all occupation and all enjoyment of life." He regards castration, too, as indicated when a psychosis is maintained by the anæmia resulting from hemorrhage in consequence of a uterine myoma. Now in regard to the results arising from the operation in cases of bleeding myomata, unfortunately he gives no statistics, and we may supplement the deficiency by those of Winckel in his recent admirable work upon diseases of women. Fifteen per cent. of women who have had their ovaries extirpated for bleeding myomata died; twenty per cent. of those who survived were not benefited; and, hence, the operation cured sixty-five per cent. This is by no means a favorable showing, even including those cases in which mental disorders resulting from the anæmia were cured.

In reading Hegar's article one is struck with the admitted difficulties in determining the cases in which castration is indicated; a most commendable frankness characterizes the author's utterances, and while he regards the operation with great favor, having had from it, in suitable cases, most brilliant results, he cautions against resort to it without clear indications. He concludes his able contribution by a consideration of "the causes of the mishaps which unfortunately are not rare, and which have brought the operation, otherwise so beneficial, into discredit."

The most brilliant of the series is Sir Spencer Wells's contribution, but we have only space to refer to his conclusions. The first is that the "removal of normal ovaries may be advised in some cases of uterine fibroids, and in uncontrollable uterine hemorrhage." But is this operation a remedy for other hemorrhages than those caused by fibroids? The cases must be very rare that justify it.

Another indication is "certain malformations of the genital organs, deformities of the pelvis, and accidental obstructions of the vagina." The right to use the operation "is very limited in cases of ovarian dysmenorrhœa or neuralgia, and only when they have resisted all treatment, and life or reason is endangered."

He regards it as "inadmissible in nearly all cases of nervous excitement and madness;" he states that "it should never be done without the consent of a sane patient, to whom its consequences have been explained." He also says that "the excision of the morbid ovaries and appendages should be distinguished from oöphorectomy, and ought not to be done without the authority of consultation, as in most other cases of abdominal section," and that "in nymphomania and mental diseases it is, to say the least, unjustifiable."

It is probable that these conclusions, so conservative in character, will meet with the approval of the majority of gynecologists. There is a growing conviction in the professional mind that removal of the uterine appendages has been resorted to in many cases unnecessarily, and that some of the friends of these operations have been erecting too large a superstructure upon a limited foundation. These articles will help to a larger knowledge and a wiser practice.

HOSPITALS FOR THE INFECTED SICK.

A HOSPITAL for the infected sick is never looked upon with favor by the neighborhood, partly on account of the fear of the spread of the diseases treated in it to the inhabitants living in the vicinity, and partly on account of its depreciating effect upon the value of real estate and the impediment which it certainly offers to local improvements.

A proposition has been started in Philadelphia for the removal of its municipal hospital for contagious diseases, but no new location has been suggested, and it is not an easy matter to select a site against which some objection may not be raised. The site of the present hospital could not have been better selected, but the city is rapidly extending toward it with improvements of the best character, and, unless the hospital is removed, the growth of the district will be checked, or the improvements will be of an inferior character.

There is, however, another side to the question, which bears directly upon the purposes and uses of such an institution. A hospital of this character is an important and indispensable means of protecting the public health by the facilities it offers for isolating cases of infectious diseases which are liable to spread in the community with disastrous consequences. Such an institution is for the benefit of the entire community, and should not be distantly located from any part of it, otherwise the lives of the sufferers would be imperilled by the dangers incident to distant transportation. Under the circumstances great difficulty would be experienced in persuading the sick to submit to the increased discomfort and danger, even if it were justifiable, and fear would lead to the concealment of dangerous diseases.

In order to overcome these objections, the most

judicious course to be pursued by a city like Philadelphia, covering an immense area, would be to have a series of small hospitals of limited capacity, so that the spread of infection by the concentration of the sick may not occur, and have them distributed throughout the city so as to make access convenient.

Hospitals might be located in the midst of the community, so constructed and managed as to be perfectly safe from becoming sources of danger; and, moreover, as a means of securing personal coöperation, so necessary to success in restricting or preventing the spread of infectious diseases, the people, rich and poor, ought to be induced to take advantage of the superior facilities for treating the sick, near at hand, which such hospitals would afford, and thus protect their families and the community from unnecessary exposure.

This plan, if judiciously carried out, would tend to remove the motive for concealment, lead to early and efficient treatment, from the want of which the poor frequently suffer, secure better management of cases of infectious disease, check the spread of contagion, lessen the number of cases, and save life.

A VERY curious and interesting modification of the ordinary reaction of the pupil to normal retinal stimulation, and one in which the variations in response are conditioned by voluntarily induced changes in the subjective state of the person under observation, is thus described by HAAB in the *Correspondenzblatt für schweizer Aerzte*, 1886, No. 6.

The observer sits in a darkened room in which there is but one light, derived from a lamp or candle, before which he so places himself as to gaze steadily at a dark part of the room and a little to one side of the flame. If now, *without in anywise changing the direction of his gaze*, the experimenter directs his *mental* attention to the point of light, there is an immediate and vigorous contraction of both pupils, a condition which remains as long as the attention is continuously applied to the indirect vision. On the return of the attention to the point toward which the eyes have been constantly directed there is again dilatation of the pupils. This reaction is evidently conditioned by varying states of the cerebral cortex, and by it Haab seeks to explain some of the anomalies of pupillary action noted in dementia paralytica. His observation also shows that the pupillary reflex may be evoked not merely by stimulation of the macula lutea, but, under appropriate subjective conditions, by the action of light upon any portion of the retinal surface.

BY the death of M. PAUL BERT the profession in Europe loses a brilliant representative, and France mourns a devoted son. His was a restless genius which could not be confined within the narrow lines of one profession, but sought in science, in literature, and in political life, avenues for its exercise. He was essentially a physiologist, devoted to experimental work, and his researches upon the action of gases, and the effects of barometric pressure have a permanent value. Many of his earlier researches in comparative anatomy and physiology are characterized by great ingenuity, as in the experiments on animal grafting which first brought him into notice. As a politician, he achieved remarkable success, and, when Minister of Public Instruction, was instrumental in effecting many important changes in the educational system of France. He was an aggressive and uncompromising reformer, and possessed a boldness and skill which enabled him to carry out successfully measures of the most radical nature.

It is interesting to note that while in this country and in England the profession has not yet produced a politician of the first rank, there have been several on the continent of Europe. Of these Virchow is the veteran, though the conditions of life in imperial Germany have never enabled him to achieve the success which Paul Bert had in republican France. In Italy, Professor Bacelli has been a minister of the crown, and in France Dr. Clemenceau remains as one of the most trusted leaders of the people.

THE Michigan State Board of Health has requested the Regents of the University of Michigan to consider the advisability of establishing a laboratory of hygiene, in which original investigations—chemical, microscopical, and biological—shall be carried on, and attention shall be given to the subjects of the analysis of water, the adulteration of food, and the practical investigation of other questions in sanitary science. The importance to the public of the establishment of such a laboratory cannot be overestimated, and it is to be hoped that the request of the Board will be promptly acted upon by the Regents.

REYHER records, in the *Deutsches Archiv für klinische Med.*, Bd. 39, Hefte 1 und 2, thirteen cases in which pernicious anæmia was coincident with the presence of a bothriocephalus latus in the intestinal tract, and in which the expulsion of the parasite resulted in the cure of the disease. One of these patients manifested the symptoms of the disease three times within the space of five years, which symptoms were, in each instance, at once relieved upon the removal of the tapeworm. In several of the cases the host entertained at one time several of these parasites. The examination of the blood showed the presence of distorted "rouleaux," together with numerical diminution and alteration of form in the red corpuscles.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, October 25, 1886.

Dr. Lange presented a case of

ANEURISM OF THE OBTURATOR ARTERY,

giving the following history:

G. B., twenty-one years of age, had acute osteomyelitis of the left os ilei, about six years ago. During the acute stage spontaneous separation of the epiphysis of the femur occurred, and recovery took place after a sequestotomy of the ileum. The limb gradually became so much adducted, that, for its use in walking, a shortening of three or four inches took place, though bony ankylosis existed at the hip-joint. Subtrochanteric cuneiform osteotomy, about a year ago, done at the German Hospital, improved his condition so much that he was able to walk without adding anything to his heel, until lately, when moderate adduction again made itself manifest. At the seat of the hip-joint everything seemed to be one bony ankylotic mass, and still we must assume that within this mass gradual bending must have taken place, forcing the bone of the femur into adduction.

The day before yesterday the patient consulted him for a sciatic pain. He had contracted gonorrhœa two months ago, and in examining him I found a condition of things for which I take the liberty to solicit your attention and call forth your criticism.

You see here, immediately below the inner half of Poupart's ligament, a slight, but distinct, elevation extending a few inches down, and being situated somewhat nearer to the adductor side. One feels distinctly a swollen gland on top of this swelling, which, to the touch, seems to transfer a distinct and powerful pulsation isochronic to the radial and femoral pulse. One hears, also, a distinct bruit. The femoral artery can be traced right on the lateral edge of the swelling; but compression of this artery, also, above Poupart's ligament, seems not to have any effect on the pulsation. If, one, however, exerts a pressure on the tumor itself, deep toward the foramen obturatorium, the pulsation ceases. I have tried compression of the arteria obturatoria from the rectum, but I am not quite sure whether a large artery which I felt and compressed, was that vessel. Its isolated compression seemed not to have any decided effect on the pulsation in the tumor, but simultaneous compression of the external iliac seemed to stop it, or, at least, considerably to diminish it. I am inclined to assume, from the anatomical seat, its shape, consistency, and physical symptoms, that we have to deal with an aneurism, which seems to be furnished principally through the arteria obturia, but probably also communicates with the femoral or one of its main branches. I thought of the possibility, whether, perhaps, a small spiculum of bone, by gradual erosion of the arteria obturatoria, might have caused this aneurism.

Dr. Lange also presented a very interesting case of

PARTIAL RESECTION OF THE ELBOW-JOINT.

In this case an injury had taken place three months previously, and then soon ankylosed at an angle of 140°, with only a few degrees of motion. The capitum radis could be made out, and seemed to be in its proper position to the external condyle; a diagnosis of an oblique fracture of the humerus into the joint was made. There being a large protuberance on the inner side of the joint, which presented the outlines of the trachea, he thought that the outer half of the articular body of the humerus, together with the bones of the forearm, was dislocated outward, but on opening the joint a different condition was discovered. The condyles were almost normal, while, at the same time, an incomplete dislocation of the bones of the forearm was found to exist, so that the ulna articulated with the capitellum, the external condyle was dislocated outward and much thickened. After subperiosteal excision of the lower end of the humerus the wound was entirely healed at the end of three weeks, and the patient has motion of the joint now between the angles of 90° and 160°; at the same time he is steadily improving. The healing process took place under two dressings, and by first intention; there are both pronation and supination. The after-treatment consisted of passive motion and exercise, a light-jointed silicate splint with rubber muscles being worn, to assist him in using the muscles of his arm.

The splint, which had been exhibited by Dr. Lange on previous occasions, was then applied to the boy, and the method of exercising the muscles and securing further motion exhibited.

Dr. Wyeth remarked that if, as Dr. Lange suspected, aneurism of the obturator artery existed, the failure of pressure upon this artery (with the finger introduced into the rectum) to arrest pulsation in the tumor might be explained, by assuming that this was one of those instances in which this vessel had two origins, viz., one from the anterior branch of the internal iliac, and the other from the deep epigastric branch of the external iliac: a condition which he had seen in several subjects while making a series of dissections of the pelvis.

Dr. Gerster remarked that he thought there might be a possibility of the condition mentioned by Dr. Wyeth existing.

Dr. Lange said he had thought of that, but was compelled to exclude it, as at a certain point when pressure was made the pulsation stopped entirely.

Dr. McBurney thought the internal circumflex should not be excluded.

Dr. Lange asked what would be the best treatment for the case.

Dr. Stimson asked whether the tumor was increasing in size.

Dr. Lange replied that he had only detected it the day before, and the patient could give him no information on that point.

Dr. Sands remarked that it seemed clear that if this tumor is an aneurism it is not one of the usual kind—that is to say, not one of the femoral artery, but one which involves some branches of the internal and external iliac, and if that be the case and it is aneurismal in character, the treatment would be different from that commonly applied to aneurisms occupying this situation. He thought that under those conditions an operation involving the internal iliac might be necessary. At first, however, pressure in the rectum upon the internal or common iliac should be tried. He thought, however, that if operative procedures were decided upon, ligation

of the common iliac artery might prove necessary, and if he had such a case he would not postpone the operation very long. He would very much dislike to open such an aneurism, and he had no faith in treatment by medicine.

DR WEIR asked if he did not understand from Dr. Lange that external pressure controlled the pulsation.

Dr. Lange replied that it did, but the pressure had to be so intense that he thought the attempt should be made under chloroform. If this should prove a failure, he would prefer to tie the obturator artery first, fearing that the anastomosis might not be perfect enough to supply blood to the limb in case the common iliac was tied. It had seemed to him during an examination at his office that a large vessel inside of the pelvis, probably the enlarged obturator, was the principal feeder of the aneurism. He intended, however, to repeat the examination.

DR. WEIR called attention to the fact that pressure at one point arrested pulsation in the tumor. He would, therefore, before resorting to the methods proposed by Dr. Sands, first try external compression, having not long since shown a case of vertebral aneurism to the Society, which had been cured by compression under similar circumstances.

DR. SANDS said that in making his previous remarks he took it for granted the aneurism was fed from a double source; if from a single source, he might modify his expressions.

DR. STIMSON thought the youth of the patient would suggest that it was not an aneurism of the ordinary spontaneous kind, with fusiform dilatation of the artery, but more probably a pouched sac formed after wounding of the vessel. Such an aneurism would be suited to treatment by coagulation of its contents, induced by the introduction of coagulating substances; and, therefore, if compression failed, he would prefer such treatment to ligature of the common iliac.

DR. SANDS asked whether the insertion of a coagulating substance into the sac would not be a very serious matter.

DR. STIMSON replied that he did not think facts had proved it to be so. He meant solid bodies as well as fluids. Such substances had been introduced in intrathoracic and abdominal aneurisms without causing any serious reaction, although the patients had usually died from the progress of the disease.

DR. BRIDDON said in that case he would prefer the electrolytic action of the constant current to any other means except pressure.

DR. GERSTER remarked that in relation to the case of elbow-joint difficulty presented by Dr. Lange, he added his testimony as to the efficacy of the apparatus applied by him in the after-treatment of the patient; he had used it himself with the most satisfactory results, and it was so simple of application.

DR. POORE asked how long after the operation passive motion is commenced.

DR. LANGE replied, as soon as possible without exciting inflammation.

DR. LANGE then presented a case in which he had performed

RESECTION FOR ANKYLOSIS OF THE JAW,

giving the following history:

Girl, eight years of age, had scarlet fever and diphtheria in her third year, after that running ears and some deficiency in hearing. In her fifth year she suffered from measles, after which her mother noticed an increasing stiffness in her jaw. By and by the mouth became tightly closed, and remained so for the most of the time. Occasionally, however, the teeth could be more easily separated, when, also, hearing seemed to be improved.

At the time of admission to the German Hospital, slight mobility of the lower jaw could be made out, so that the blade of the knife could be put between the incisors, which, as a rule, overlapped each other, so that the lower ones were behind those of the upper jaw, and also to some distance backward. The lower jaw was abnormally small and slightly turned to the left, so that the middle line of the chin did not correspond to the middle line of the face. The left half of the bone seemed somewhat shorter than the right one. It was impossible to make out whether the ankylosis was seated principally in the left or right joint; the muscles seemed more active on the right. This, and the apparent shortening of the left jaw, led Dr. Lange to assume that the left jaw was the one affected.

The operation was done by an incision about one and a half inches in length, along the lower edge of the zygomatic arch (Koenig). In spite of that slight degree of motion, not a trace of the old joint could be found. Everything seemed to be changed into one bony mass, which, piece by piece, had to be dissected away. The operation was done strictly subperiosteally. After ten days, cicatrization was complete. At the end of the first week, exercises were made to increase the mobility of the jaw, which, immediately after the operation, did not allow of opening the mouth more than to about one centimetre distance between the incisors, so that Dr. Lange thought the other joint would have to be excised also. Very soon, however, the mobility increased; and now, about six weeks after the operation, the mouth can be opened to about one and a quarter inches.

It was very remarkable in this case, that, in spite of the complete bony ankylosis on one side, some slight mobility of the jaw existed before the operation. Dr. Lange had observed another case, where the ankylosis had been the result of an injury during birth. One blade of the forceps had caused, by pressure, gangrene of the soft parts above the left articulation, with complete ankylosis following. Dr. Lange operated upon the child at its sixth year of age. His jaw was less developed and abnormally small, as in the case presented. Both joints were excised, and also the coronoid process on the left, because its presence, through mechanical obstruction against the zygomatic bone, interfered with the attempts at motion. The result in this case was good and lasting until the child's death, which occurred about three years later, from tuberculosis.

DR. GERSTER then presented a patient on whom he had performed

CHISEL-EXSECTION OF MAXILLARY JOINTS FOR TRUE ANKYLOSIS.

Lina T., æt. fifteen, a semi-idiotic, rather anæmic girl, was admitted to the German Hospital, March 30, 1886, for a disability of opening the jaws. Her mother stated that, some years ago, the girl had a severe and

long-continued feverish illness, in the course of which a swelling of one cheek developed and pus was discharged from her mouth. Since then she was unable to open her jaws at all, and had to subsist on liquid food. On examination, a marked hemiatrophy of the left side of the face was noticed, together with a slight degree of microcephalism; no paresis of the cranial nerves. The upper and lower incisors were in close contact, and the greatest practicable force could not separate them or move them laterally, even in full anæsthesia. No cicatrices could be detected externally or in the oral cavity, nor was there anything noticeable in the outline of the osseous parts of the maxillary joints. Both masseters were found to form a sharply defined band of normal dimensions, but very great hardness. As the certain diagnosis by a true ankylosis was not possible, it was decided to cut the upper insertion of the left masseter, and eventually proceed to exsection of the left joint, where the origin of the disease was suspected to have been located, on account of the atrophy of the corresponding side of the face; atrophy, as a sequela of inflammations, being a plausible supposition. On April 3d, an incision along the lower edge of the zygoma enabled a division of the muscle, which was not followed by any improvement of the functional defect. Therefore, a vertical incision was added to the posterior end of the first incision, a triangular flap being thus raised, and the joint was exposed with some difficulty. This was due to the atrophy and smallness of the head of the inferior maxillary, which was found, together with the glenoid cavity, bare of cartilage. The head was removed with the chisel, without any trouble or mishap. But the immobility of the jaw remaining unchanged, it became evident that the principal trouble was located on the right side. On account of the duration of the operation, it was decided to postpone the exsection of the left temporo-maxillary joint to a later date. The wound, being sewed, healed promptly. On April 29th, ether was again administered, and a horizontal incision of two and a half inches was carried from the external meatus of the right ear forward along the zygomatic arch. The temporal vessels being doubly tied, were severed; and the region of the joint being exposed, it was found that a solid and rather massive bony union of the head and coronoid process with the temporal bone had formed, this mass exceeding the normal width of the head by about half an inch. A wedge of very hard ivory-like bone being removed by the chisel, the jaws could at once be separated freely, the distance between the incisors being four cm. On the 11th of May this wound was also healed, and the jaws could be separated by the patient herself to a distance of three cm. Chewing was practised without difficulty, and the function is excellent to this day. Regarding the causation, the presence of an inflammatory process is indubitable as an important element, probably in the course of a typhoid fever or acute inflammatory rheumatism. Whether the hemiatrophy was due to the presence of the ankylosis, is very doubtful; but it seems rational to assume that the atrophy of the temporo-maxillary joint of the left side was caused by the absence of the physiological stimulus of motion in the joint. The operation is rational and safe, and has yielded excellent results to other observers, abroad as well as at home. The horizontal incision, as devised by Bottom and König, has been found to be the better one, although deligation of the temporal artery cannot always be obviated.

The subject was discussed to some length at the Fourteenth Congress of German Surgeons.

Dr. Abbe thought the chance of retaining the benefit gained was great.

Dr. Lange asked Dr. Gerster whether bony ankylosis occurred on both sides with his patient.

Dr. Gerster replied it was only on the left.

Dr. Lange remarked there was one special point of interest connected with these cases, and that was how to decide upon which side of the face the ankylosis was situated. He did not know of any guide to this, as in the case he had introduced he was uncertain before operating; but was led to assume that the left joint was affected from the fact that the left side seemed shorter.

Dr. Weir asked if the history of the ear trouble did not help him.

Dr. Lange replied that that occurred on both sides.

Dr. Gerster remarked that it was the same in his case; but he was mistaken, as the disease was on that side of the face which was better developed.

Dr. Lange presented a specimen of

ANEURISM OF THE ABDOMINAL AORTA TREATED BY THE INSERTION OF WIRE INTO THE SAC,

occurring in a man at the German Hospital. The patient, about forty-five years of age, was originally treated for syphilis but with no effect. Finally Loretta's operation was decided upon, viz., the entrance of wires into the sac after laparotomy: the aneurism, however, enlarged very rapidly both in the epigastric and lumbar region about the right kidney. One morning it became apparent that the blood had effused behind the peritoneum and in front as far as Poupart's ligament. A modification of the above operation was afterward decided upon by passing a needle through the viscera and into the sac and introducing the wires; the aneurism had become very much enlarged and the patient very anæmic. The first operation was done fourteen days ago. A puncture was made in the epigastric and lumbar region, and three metres of thin wire were used; the patient did not need any anæsthetic and the operation caused no disturbance. The swelling in the epigastric region gradually diminished and in the lumbar region it became harder: a few days later a swelling appeared near the liver; the needle was again inserted at that point and just above Poupart's ligament: a solution of chloride of sodium was then infused into the cephalic vein, the patient bearing it well, but yet the aneurism gradually increased. A second transfusion five days later caused slight improvement, but all further attempts were desisted from; the patient dying of pneumonia twelve days after the first operation.

The post-mortem showed the viscera so much displaced that the right kidney was pushed forward and lay near the edge of the liver at the ascending transverse part of the colon, while the stomach was somewhat dislocated to the left side: there was no trace of puncture in the epigastric region or in any of the interlying organs: probably the puncture had been made through the left lobe of the liver and into the sac. On the left side between the layers of the meso-colon the abdomen was filled with blood, but the principal mass was on the right side, where there was about a gallon or

more. The aorta showed extensive atheromatous degeneration. The aneurism was located immediately below the diaphragm and communicated with the aorta by a lengthy opening through the posterior side of the vessel; there was also erosion of the twelfth dorsal and first and second lumbar vertebræ; the walls of the sac were quite firm from organized fibrin, the sac was as large as two fists and was ruptured on its right side, the silver wire being distinctly shown as it had been entered into the cavities; presenting in one case distinct coagulation which had taken place around the substance, but in the other sac in which the wires had been introduced the wires were quite clean; the punctures were made at three different points as before stated, but by all appearances two wires entered the same cavity. Dr. Lange did not think that coagulation was bound to occur, and he could not say whether the immense clot found in the original sac was produced by the wires or not; but where previously there had been a strong pulsation, two days before death that pulsation was hardly perceptible, and the bruit had disappeared. He thinks that if the case had been taken earlier rupture of the sac could have been prevented and a cure effected even in this severe case.

Dr. McBurney asked how much wire had been used.

Dr. Lange replied twelve metres, or about thirty feet.

Dr. Briddon remarked that the operation was performed many years ago by the late Dr. Gurdon Buck.

Dr. Gerster remarked that he was present at the operation by Dr. Lange and thought it much better than Loretta's method, which requires opening of the abdominal cavity; and at the post-mortem in this case it was proved there was no irritation caused by the introduction of the wire.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting November 2, 1886.

The President, C. L. Dana, M.D., in the Chair.

A CASE OF BITEMPORAL HEMIANOPSIA.

Dr. Edward Waitzfelder presented the patient, a lad, whose general history was negative until five months ago. He then noticed a "blur" over the right eye. He consulted Dr. P. A. Gallan, at the New York Eye and Ear Dispensary, who diagnosticated right temporal hemianopsia. The condition grew worse; the left optic nerve became involved, and left temporal hemianopsia developed. The nasal fields of both eyes were unaffected. Two months ago the patient had choked disk in the right eye. His condition November 1st was as follows: No other basal nerve affected; he has complete bitemporal hemianopsia, the whole of fixation point being included in the seeing field. Theoretically the fixation should be dissected, but practically it never is; there is atrophy of both optic nerves, most marked in the right. Vision, R. E. $\frac{8}{CC}$; L. E. $\frac{20}{XX}$. Diagnosis: tumor of the chiasm in the anterior portion; pressure upon the fascicula cusciata of both optic nerves, the fasciculi laterali being as yet unaffected. There is no tubercular or syphilitic history. The rapid growth of the lesion points strongly in the direction of sarcoma.

So far as Dr. Waitzfelder could ascertain, this was the first recorded case in the English language. The point of special interest in the case was that the fixation point was "dodged" by the line of the hemianopsia. Why this was so he could not say, but it would seem to indicate that there was a special set of nerves intended only for extreme central vision.

Remarks were made on the case by Drs. Pooley, Webster, Starr, Leszinsky, and Bullard.

COCAINE AND THE SO-CALLED COCAINE HABIT.

Dr. W. A. Hammond made some remarks upon his personal experience with some of the preparations of cocaine. He had used only the fluid extract, various wines, and hydrochlorate of cocaine. The fluid extract had been discarded by him two or three years ago, mainly because it had been badly borne by the stomach; it excited nausea and was disagreeable to the taste. He then began the use of the wines, but finding that they differed so much in their effects, he gave them up until he suggested to Thurber & Co. to try to make a wine of coca free from tannin and extractive matters, and they had, he believed, entirely succeeded in doing so. There were two grains of the hydrochlorate of cocaine to the pint of wine. With this preparation he had had an extensive experience, not only upon others, but upon himself. He has used it in spinal irritation with excellent results, results which could not be attributed alone to the wine, but in part to the cocaine. He had used it also as a general tonic and for fatigue. For some time past he had been in the habit of taking a wineglassful at the close of his day's duties, and with benefit; it certainly had a decidedly restorative effect, without being followed by a feeling of depression. He had also used it in some cases of dyspepsia with a very irritable state of the stomach. He supposed its action was by lessening the sensibility of the stomach, as it lessened sensibility when applied to other parts. It was remarkable to what an extent the irritability of the stomach was overcome by doses of two or three teaspoonfuls of the wine of coca repeated at intervals of fifteen or twenty minutes until half a dozen doses had been taken. If the first doses were vomited, the succeeding ones would be retained longer, until finally they were retained altogether. Cases of irritability of the stomach, due apparently to spinal irritation, had been relieved within a few hours by this treatment. Generally when he wished in any case to produce a powerful therapeutical effect he employed the salt.

Dr. Hammond here spoke briefly of the physiological effects of coca, and said that the first writer, Tschudi (?), who had described its effects upon the native Indians of South America, gave an exaggerated account of its baneful influence, and his ideas had been copied over and over again without the authority being given, until our minds had become thoroughly indoctrinated by them. That author said, among other things, that the coca rendered the teeth black, produced ulceration of the tongue, caused the breath to be fetid, the jaws to become ulcerated, the bones to soften, and rendered the patient an idiot. But subsequent observers said that such results must be entirely exceptional, as they had never seen them. If there was discoloration of the teeth, Dr. Hammond thought it might be accounted for by

the lime which the Indians mixed with the leaves, or by the presence of tannin.

There had recently been some very striking stories in the newspapers regarding the injurious effects of the drug upon persons who had become addicted to its use. In order to determine whether there was any truth in these statements, Dr. Hammond made some experiments upon himself. He first injected hypodermatically one grain of the hydrochlorate of cocaine, which caused an exhilaration of spirits and a happier state of mind than he had enjoyed during that day. He was unable to sleep that night until four or five o'clock in the morning, and when he got up he had a severe headache. He also had a large evacuation of urine. The effect of the drug was to produce an exhilaration such as would be produced by two or three glasses of champagne. The next night he injected two grains, which produced the same pleasant feeling, and, in addition, he felt an inordinate desire to write. He wrote eight or ten pages of foolscap, and thought it was the best that he had ever written, but the next morning he found that it was the most extreme nonsense. Each sentence was complete in itself, but no two sentences had any relation to each other. The first part was more incoherent than the latter. The next night he injected three grains, and although he again felt the disposition to write, he did not indulge it, but he talked a great deal and made speeches. He knew what he was about, and was able to restrain himself, but it was pleasant to speak. He went to sleep late and again awoke with a severe headache. It was a peculiar fact in his case that at the point of injection there always developed redness, and swelling stopping short only of an abscess.

He now had several hard spots on his arm, and waited four or five days, when he injected six grains of hydrochlorate of cocaine, three grains at two different places. He then felt decidedly "upset," yet he did not lose consciousness nor his relation to things. He gave instructions to his servants correctly, but he did not feel a strong disposition to write or to talk. He was unable to sleep at all that night. The injections were always followed by large evacuation of urine, and by headache next day, but without debility. Three nights later he injected eight grains with about the same effects. The next night he injected eighteen grains, making six different punctures, all inside of twenty minutes. He became intensely exhilarated, and was unable some hours afterward to recall what he did. He was in his office, but in some way got to bed, and the next day he found things in more or less disorder in his office. His headache remained for two days, and there was great action of the heart—palpitation; he could hear it beating on raising the arm to the head. Exaggerated action of the heart had also attended the smaller doses, but he experienced none of the horrible effects which are said to attend the use of the drug in large or continued doses; no disposition to murder, or commit acts of violence. He acquired no habit, he was able to quit its use at once. And regarding the cocaine habit, he would say that he had given the drug in doses of from one to five grains for three months to a lady suffering from exophthalmic goitre, and she was then able to discontinue its use without any difficulty. At no time did she manifest any loss of moral principle. She took two doses a day. From a theoretical standpoint perhaps cocaine should not be administered in this disease, but it proved beneficial in this case, for the heart's action, which had been increased, diminished, became steadier, and the patient felt much better. He also gave it for some months to a lady addicted to the opium habit, carrying the dose up to five grains injected once a day. It overcame the opium habit, and the patient failed to acquire the so-called cocaine habit. In this, and other patients to whom he had administered cocaine, it produced, as in his own case, extraordinary action of the heart, increased temperature and blood pressure, perspiration, and indisposition to sleep.

He had used a ten per cent. solution of cocaine, soaked in lint and applied to the vulva, for the relief of masturbation. But it had failed in one case, that of a girl four or five years of age. It had been ineffectual in boys, applied to the glans penis.

In three cases of melancholia in women who refused to speak, injections of hydrochlorate of cocaine had overcome the prolonged silence. The first was a marked case of melancholia with stupor, and the patient had not spoken for nine months. At the first sitting he injected one grain of hydrochlorate of cocaine. The patient then nodded or shook her head in reply to questions, but would not speak. At the next sitting three grains of the drug were injected, and within four minutes the patient replied to questions by yes or no, and within ten minutes she began to talk, and kept on talking, although incoherently. She did not sleep that night, and seemed to have pain in the head the next morning. The next injection of three grains caused the patient to talk, but less incoherently. This was a year ago, and the patient continued as melancholic as before, but she talked, if that was any advantage. Dr. Hammond had failed occasionally to induce patients to speak by injections of cocaine.

As to the cocaine habit, Dr. Hammond regarded it as similar to the tea or coffee habit, and unlike the opium habit. He did not believe there was a single instance of well-pronounced cocaine habit, the patient being unable to stop it at any time if he chose to do so. If a person were to continue its use for a long time he should be inclined to look for trouble with the heart rather than with other organs.

Dr. J. B. Mattison, of Brooklyn, could not agree with Dr. Hammond that there was not a cocaine habit. Within a few months he had had seven cases of the cocaine habit under his care, five in physicians, and two in druggists. He certainly believes there is such a thing as cocaine addiction. He regarded the drug as most dangerous and destructive of the tissues. In certain cases its action is more unfavorable even than morphine. The cases reported in newspapers he thought were founded on facts. In one instance he wrote to a physician asking whether the report was true that a certain doctor had been arrested in the street, under the influence of cocaine. The physician replied that it was true, that the doctor was a victim to cocaine. He could cite other similar cases.

In one instance a physician attempted to write a prescription for a patient, but instead wrote for the Sheriff to come and take him to jail. The effects of cocaine, so far as he had observed them, were similar to those described by Dr. Hammond, but besides the action of the heart, the great volubility, and the unrest, he had noticed

hallucinations and delusions, but no homicidal or suicidal tendency. In some cases there was marked emaciation. He thought the effects of the continued use of cocaine are more decided than those of the continued use of morphine. The patients whom he had treated had acquired the cocaine habit gradually, making comparatively small injections several times a day. Dr. Hammond seemed to think that no dose was toxic; but he regarded Dr. Hammond's case as exceptional, and he would not advise any physician to repeat the experiment.

Dr. J. Leonard Corning thought there was a morbid fear of cocaine spreading throughout the community, and he thought the remarks of Dr. Hammond were timely, as they would tend to allay the prejudice against a most useful remedy.

Dr. L. C. Gray remarked that between Dr. Hammond on the one side, and Dr. Mattison on the other, there was considerable distance, and he did not know how the question could be solved except by further experience. Dr. Hammond's statement, that no cases had been reported by medical men, was a mistake. Cases had been reported in Europe, but they were not numerous.

Dr. M. R. Richard said that about six years ago he had a case of despondency in a lady disappointed in love. This was in New Orleans, and a physician there told him that he was in the habit of using an infusion of coca leaves in such cases. He gave it to this woman with happy results. Three years ago he came to New York, and was unable to find any coca leaves. Taken in this manner the patient would not be likely to get a sufficient amount of the drug to acquire a habit.

The President read a communication from Dr. C. H. Hughes, of St. Louis, in which he said: Most of the cases of cocaine habit seen by me have been mixed cases of opium, cocaine, and alcohol or ether inebriety, combined, or alternating; though I think I know of cases in which cocaine is the chief, if not the exclusive, reliance. But these patients are not reliable in their statements. I have not seen a physician addicted to cocaine who stuck to cocaine exclusively. The finale has generally been cocaine and opium and whiskey, and ether, and all the other neurotic stimulants. Opium is a much more agreeable stimulant, and most patients evidently try to get back to the fatal bliss of opium. I have never relied on cocaine alone in breaking up the opium habit. I never use cocaine to intoxication, and never regularly. My rule with cocaine cases, as I usually see them, is to get them back to plain opium, and then to break them of that, if advisable. Dr. Hughes referred to the fact, that in some cases cocaine produced poisonous effects.

The President referred to thirteen cases of cocaine habit, reported by Dr. Erlenmeyer, and to a case reported by Bornemann. The subject, he said, had recently been discussed at the meeting of the German Congress of Physicians and Naturalists, when Dr. Smidt reported some cases of cocaine-morphine habit. The general opinion was that pure cocaine addiction was rare, but that the cocaine-morphine habit was not so, and was a very destructive and pernicious habit.

Dr. Hammond, in closing the discussion, said he did not deny the existence of a cocaine habit; he only claimed that it was unlike the opium habit, for the patient could break it off at will. He was aware that patients addicted to the use of opium sometimes added cocaine, greatly to their detriment. As to cocaine being a poison, twenty, and even thirty-two grains had been taken without serious results. He differed from Dr. Mattison, who thought it was more injurious employed hypodermatically. But the patient came under its influence more slowly when it was taken into the stomach.

The President reported, for Dr. Herman M. Biggs,

A CASE OF SUBACUTE SPINAL PARALYSIS,

and exhibited specimens of the cord and sciatic nerve. The case was characterized by gradual paralysis of the lower, and then of the upper extremities, with moderate atrophy. Later a slight anæsthesia of the lower extremities, no pain, loss of tendon reflexes, and no bladder troubles. The course was progressive. Death took place in five months. Autopsy. The patient was a male, aged sixty-two, not syphilitic. The interest in the case lay in the rarity of the affection, and especially of cases in which post-mortem observations had been made. Clinically it resembled mostly the subacute spinal paralysis of Duchenne, although that disease is very rarely fatal. It still more strongly resembles a chronic form of Landry's acute ascending paralysis, and gave support to Ross's classification of: 1, Landry's paralysis; 2, the subacute paralysis of Duchenne; 3, periependymal myelitis; and 4, progressive muscular atrophy, as inflammatory processes attacking the central gray matter of the cord, and distinguished by the greater or less acuteness of the process. The case was interesting, also, as showing that these paralyses are not always at least due to neuritis.

Dr. Dana showed sections of the lumbar and upper dorsal cord, which he thought presented evidences of a low grade of central myelitis. The anterior roots and the sciatic nerve were apparently normal.

NEWS ITEMS.

BOSTON.

(From our Special Correspondent.)

Harvard's Two Hundred and Fiftieth Anniversary.—The celebration of the Two Hundred and Fiftieth Anniversary of the founding of Harvard University has been attended with much that is of interest to educated men, and especially to all of the professions, the medical profession no less than the others.

Of the four days over which the exercises extended, the last, which was designated as Alumni Day, was especially full of interest. The President of the United States, with several members of his Cabinet, and other invited guests from this country and abroad, and the officers of government and instruction of the University, and a long line of alumni formed in and near the library, and marched through the college yard to Sanders's Theatre, where were already assembled many ladies. The members of the various faculties, dressed in silk gowns and with Oxford caps, gave novelty to the procession.

In the theatre, and filling the ample balcony, were hundreds of ladies, including, Mrs. Cleveland, Mrs. Eliot, Mrs. Endicott, and Mrs. Robinson. On the stage, the two hundred seats were occupied by the guests, including the President of the United States, the

Secretaries of State, War, and of the Navy, Senator Hoar, Governor Robinson, the Mayor of Boston, the Sheriffs of Suffolk and Middlesex, delegates from universities and colleges, many distinguished invited guests, among them Prof. Leidy, Dr. John S. Billings, Dr. S. Weir Mitchell, and the members of the government and various faculties of the University. The body of the theatre was filled with the Alumni, the older classes entering first, beginning with the class of 1811. After all were seated, Chief Marshal Henry Lee called them to order, and Judge Devens, after a brief address of welcome, invited Professor Francis G. Peabody to begin the exercises with prayer. After the prayer, a chorus of one hundred and fifty men's voices in the gallery over the stage sang Gounod's "Domine Salvam Fac."

James Russell Lowell, who was greeted with great applause, then delivered a most finished oration, unsurpassed on such an occasion, and well worthy of careful reading by all intelligent and educated persons.

After more music by the Anniversary Chorus, Dr. Oliver Wendell Holmes read the poem. The chorus then sang "A Mighty Fortress is Our God," after which the honorary degrees were conferred upon many distinguished persons, among whom were three from the medical profession, Prof. Joseph Leidy, Dr. S. Weir Mitchell, and Dr. John S. Billings.

A benediction by Dr. A. P. Peabody brought to a close the morning ceremonies, which were in the highest degree dignified and impressive, and accompanied throughout by earnest and enthusiastic applause.

At two o'clock the procession reformed at Gore Hall and proceeded to Memorial Hall, the largest college hall in the world, where, surrounded by monuments of heroes and benefactors, the Association of the Harvard Alumni received their distinguished guests at dinner. During the banquet, Mrs. Cleveland, and the ladies accompanying her, entered the balcony; this was the signal for all to rise and greet her with great applause. On the dais sat many dignitaries, including the President of the United States, the foreign delegates and guests, the orator and poet of the day. The throng on the floor included men of all ages and of much distinction. The Alumni were fortunate in being presided over by Judge Devens, who most felicitously introduced the many noted speakers.

Of the speeches made, that by the President aroused unbounded enthusiasm, and the toast of "The Science of Medicine and Surgery" was ably responded to by Dr. Mitchell.

The Japanese and Quarantine.—The intelligent and independent judgment exhibited by the Japanese in their application of knowledge acquired in Europe and America is well exemplified by the port sanitary regulations, which the *Indian Medical Journal* states to have been enforced during the prevalence of cholera in 1885. All vessels from infected localities were subjected to medical inspection before any communication with the shore was allowed; if the crew and passengers were found healthy, the vessel was allowed to proceed. These reasonable regulations, founded upon a scientific knowledge of the disease and of the nature of infection, are in striking contrast with the panic-stricken haste with which many European nations impose their so-called "rigorous quarantine." The Japanese appear to possess the rare power of learning from the experience of others.

The Hygienic Museum of Berlin, presided over by Dr. Koch, was opened on October 11th. The collection is described as a very comprehensive one.

Electricity Utilized as a Means of Punishment.—An ingenious Swiss is said to have devised an electrical whipping apparatus which will inflict the requisite amount of pain without causing unsightly and inconvenient wheals.

The Disadvantages of using a Brook as a Sewer.—The presence of a small stream running through a village is very tempting to advocates of putting nuisances out of sight without regard to their ultimate disposal. When the stream becomes polluted by the drainage of the adjoining populated region some one is sure to suggest that it be arched over and made a sewer.

In general, it may be asserted positively that this is a bad plan. There may be exceptions occasionally to this broad assertion, but they are so rare as not to be worth taking into account in a general consideration of the question.

A small natural stream is liable to excessive fluctuations. In dry seasons its flow will be very slight, and after heavy showers it will be a turbid torrent. Any channel to carry its waters must be of a capacity many times greater than is needed for certainly nine-tenths of the time. The occasional flushes which it receives from storm-waters are not sufficient to keep it clean and sweet during the intervals of small flow and slight fluctuations.

A channel for conveying sewage-water ought to be adapted to keep itself clean by its natural flow as nearly as practicable, and to effect this object it must have a limited capacity and be capable of frequent flushing with a quantity of water only slightly in excess of the greatest flow likely to occur during the hourly fluctuations of the household use of water.

This fluctuation is theoretically, according to German experiments, between 38 and 190 per cent. of the average hourly flow during the day. According to some American experiments the variation lies between 55 and 130 per cent. of the average hourly flow. This flow is quite constant during the year, and it may safely be assumed that a sewer to act efficiently need not, and indeed ought not, to be larger than is essential to carry when full double the average daily quantity of sewage likely to reach it.

It is easy to see that the size and cost of such a sewer will be much less than that of arching over a natural water-course and making it large enough to convey flood-waters.

A small marginal sewer along each side of a water-course properly constructed, with its sides and grade determined by a competent expert engineer — not guessed at by a committee or a local surveyor unskilled in the subject—will cost less and be more effec-

tive, nine times out of ten, than will the water-course itself when arched over and sewage turned into it.

The Alcoholic Red Nose.—*The Church of England Temperance Chronicle* states that the following appeared among the miscellaneous advertisements in a recent issue of the *Irish Times*: "How to Change the Color of an Alcoholic Red Nose.—Recipe, which is effectual in nine cases out of ten, may be had by sending postal order for 10*s.* to 'K.,' 738, this office." There is a very watchful worker in Dublin in the person of Mr. T. Wilson Fair, the energetic Hon. Secretary of the Dublin Total Abstinence Society, so it is not a matter for surprise that the quaint advertisement above quoted was immediately followed by this: "How to Change the Color of an Alcoholic Red Nose.—Don't waste 10*s.* Call over to the Coffee Palace, 6 Townsend Street, and in 99 cases out of 100, if you sign the pledge and keep it, your nose will assume its natural shape and color.—Alcoholic Red Nose Curing, 6 Townsend Street, Dublin."

The Disposal of Refuse.—The Whitechapel Board of Guardians are successfully adopting a plan for the effectual disposal of dust and refuse without danger to the health of the inhabitants, which is pursued by some other bodies. Under the supervision of Mr. W. La Rivière, the architect and surveyor to the Board, works on an extensive scale have been erected in Wentworth Street, where the contents of the East End dust-bins are simply cremated, the smoke being, by an ingenious process, purified of any noxious gases it may possess, and then carried away through an upcast shaft 180 feet in height. Taking the foundations into account, the whole structure is 213 feet in length. The refuse is brought up on an inclined plane in the dust-carts of the Board, and emptied out on a platform, whence it is immediately discharged into the "destructor," which consists of eight cells, placed back to back in pairs. These cells are very strong draught furnaces, which in a short space of time reduce the unsavory mass to a heap of clinker, which is taken out and carted away. The smoke makes its way to the shaft by an underground flue seven feet high and four feet wide. It is stated that a considerable saving will thus be effected. Up to the present, the Board have been obliged to cart the "dust" away to Bow, and sometimes to Temple Mills, a couple of miles, or perhaps more, beyond Stratford, at a cost of from 1*s.* 6*d.* to 3*s.* 6*d.* a load. By means of the "destructor," the refuse can be destroyed for 2½*d.* to 3½*d.* a load, and thus the cost of the freehold site and construction, amounting to about £13,000, will be speedily recouped. This favorable experience will, no doubt, influence the authorities of other districts.

Method of Removing Nitrate of Silver Stains.—Dip the fingers into a strong solution of cupric chloride. In about a minute the silver will be converted into chloride, and may then be washed off with sodium hyposulphite solution.

Diluting Skimmed Milk.—A novel defence, raising the question of the liabilities of milk-sellers, was made in a case which came before the Brighton magistrates on October 9th, when Mr. William Edwards, one of the members of the town council, was prosecuted by the corporation officials for selling skimmed milk adulterated with forty per cent. of added water. The offence was not denied, but the defendant's solicitor relied for the defence on the fact that, after a previous prosecution on a similar charge, Mr. Edwards had given formal notice to the chief constable, the borough officials, and all whom it might concern, that he had never intended, and did not intend to sell pure milk, but only skimmed milk and water, or milk adulterated with water. The stipendiary magistrate ruled that such a notice could not be held to absolve the defendent, inasmuch as, however widely circulated, it could not be considered to make it patent to the mind of every purchaser, that milk was sold to them adulterated with water. Still he thought the notice lessened the offence, as it showed there was no intention to deceive or be dishonest, and he consequently imposed a smaller fine than he would otherwise have done. Defendant was fined twenty shillings and costs, or seven days' imprisonment.

Restrictions on Veterinary Practice in France.—The French Minister of Agriculture has drafted the following resolution, which has since become a law: "No one who is not in possession of a diploma in veterinary medicine, granted to him by a French veterinary school, shall practise this branch of science in France." Any breach or evasion of this law is punished by a fine of from sixteen to four hundred francs for the first offence, and if the offence be repeated, a double fine, with from six to thirty days' imprisonment.

An Unusual Case of Poisoning.—The papers have recently related a fatal case of poisoning from an overdose of podophyllum. A physician in Maine ordered, in a prescription, "Podophyllum, gr. ss." The last two letters were mistaken by the druggist for figures, and read "88." He thereupon dispensed the latter quantity, which was taken at one dose (as was presumably ordered for the correct quantity), death occurring soon after. The clinical history of the case is not given, but the toxic symptoms were probably those of an acute irritant poison. However much the physician may be blamed for his illegible writing, it is hardly conceivable any druggist could have given such a quantity of a powerful drug without at least verbal instructions to the customer as to its potency.

Medical Education of Women in Edinburgh.—The reopening of the Extra-mural Medical School on Wednesday, October 20th, was marked by the readmission of women to medical education in Edinburgh, after an interval of more than twelve years. The first year's course comprises, as usual, anatomy and practical anatomy, chemistry and practical chemistry. The ladies' class consists at present of six students, most of whom have just passed the preliminary examination in arts held by the Educational Institute of Scotland on behalf of the Colleges of Physicians and Surgeons. The classes are conducted by Dr. Macdonald Brown and Dr. Stevenson Macadam respectively, and Dr. Sophia Jex-Blake is acting as organizing Secretary.—*British Medical Journal*, Oct. 30, 1886.

Is Cock-crowing a Legal Nuisance?—People vary very much in their susceptibility to noise, but to most

persons of a nervous temperament, an intermittent noise during the night-watches is distressing in the extreme. It is all very well to read how chanticleer proclaims the morn in the country, but it is quite another thing when he lives in a shed at the bottom of the next garden in London. As Carlyle said, it is not merely the distressing noise of his crow, but the agonizing suspense while the sleepless watcher waits for him to crow again. A householder bolder than his fellows has brought an action against the owner of a loud-crowing cock, and the grand jury has found a true bill, so that the case will shortly be tried at the Middlesex sessions. The proverbial uncertainty of the law forbids any confident anticipation that the decision will lead to any considerable transference of crowing cocks from central London to their proper home in the country; so much will depend on the disposition of the jurymen.

DEATH OF DR. JOSEPH G. RICHARDSON.—Dr. Joseph G. Richardson, Professor of Hygiene in the University of Pennsylvania, and a member of the Board of Health, died very suddenly of apoplexy, at his home, No. 3238 Chestnut Street, Saturday, November 13th.

Dr. Richardson was born in Philadelphia, January 10, 1836, and was graduated from the Medical Department of the University of Pennsylvania about twenty-five years ago.

After serving as Resident Physician in the Pennsylvania Hospital and Wills Hospital, he practised medicine in Western New York. He afterward returned to Philadelphia and resumed practice here.

He was a voluminous writer on hygienic subjects, being the author of several well-known works in the department of science and also of a *Handbook of Medical Microscopy* which is used as a text-book. He was an untiring student of hygiene and microscopy.

Dr. Richardson was a member of the County Medical Society, the College of Physicians, and various other medical organizations, as well as a corresponding member of La Société Française d'Hygiène.

He spent the past summer in Europe. While there he was duly accredited by the Board of Health, and at its request investigated various matters connected with the sanitation of cities, and especially their water supplies.

DEATH OF M. PAUL BERT.—A Paris dispatch announces the death, on November 11th, of M. Paul Bert, the French scientist and statesman. He was a native of Auxerre, where he was born October 19, 1833. He studied law and medicine in Paris, and in 1868 was appointed Professor of Physiology in the Faculty of Science of Paris. He devoted himself to physiological research, and made many valuable experiments by means of balloons to ascertain the conditions of existence at various altitudes. In August, 1875, he was awarded the biennial prize in the Institute in recognition of his scientific work. M. Bert was elected to the National Assembly by the Department of Yonne in 1872, and was reëlected in 1876 and 1877. He acted with the extreme Radicals, and advocated various educational schemes, especially an act to exclude the clergy and members of religious orders from the schools of France. When Gambetta came into power in 1881 M. Bert was made Minister of Public Instruction, and in April of the following year he was elected a member of the Academy of Sciences. Last January he was appointed Minister of France at Hué, the capital of Anam, and he was holding this position when he died. He published a number of scientific works and many political articles.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 9 TO NOVEMBER 15, 1886.

SMART, CHAS., *Major and Surgeon.*—Granted leave of absence for one month.—*S. O. 265, A. G. O.*, November 13, 1886.

LORING, L. Y., *Captain and Assistant Surgeon.*—Sick leave of absence further extended three months on surgeon's certificate of disability. To be relieved from duty in the Department of California, and, on the expiration of his present sick leave of absence, will report by letter to the Surgeon-General of the Army.—*S. O. 262, A. G. O.*, November 10, 1886.

MOSELEY, E. B., *Captain and Assistant Surgeon.*—Assigned to duty as attending surgeon in San Francisco, California.—*S. O. 94, Division of the Pacific*, November 1, 1886.

BARROWS, CHAS. C., *First Lieutenant and Assistant Surgeon.*—Ordered to report to the commanding officer at St. Francis Barracks, St. Augustine, Florida, for duty at Fort Marion.—*S. O. 180, Division of the Atlantic*, November 10, 1886.

MACAULEY, C. N. B., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for twenty days.—*S. O. 118, Department of Dakota*, November 8, 1886.

PHILLIPS, JOHN L., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply at Headquarters of the Division of the Missouri for an extension of one month.—*S. O. 116, Department of Dakota*, November 2, 1886.

CROSBY, W. D., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort McDowell, Arizona Territory, to Fort Bowie, Arizona Territory.—*S. O. 110, Department of Arizona*, October 29, 1886.

MORRIS, E. R., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Bayard, New Mexico, to Fort Thomas, Arizona Territory.—*S. O. 110, Department of Arizona*, October 29, 1886.

EWING, CHAS. B., *First Lieutenant and Assistant Surgeon.*—Ordered from Fort Supply, Indian Territory, to Fort Leavenworth, Kansas, for duty.—*S. O. 126, Department of the Missouri*, November 6, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING NOVEMBER 13, 1886.

AMES, R. P. M., *Passed Assistant Surgeon.*—To proceed to duty at Vineyard Haven, Massachusetts, as inspector, November 10, 1886.

URQUHART, F. M., *Passed Assistant Surgeon.*—Granted leave of absence for seven days, November 8, 1886.

WASDIN, EUGENE, *Passed Assistant Surgeon.*—Granted leave of absence for seven days, November 11, 1886.

MAGRUDER, G. M., *Assistant Surgeon.*—Relieved from duty at Norfolk, Virginia. Assigned to duty at Marine Hospital, Chicago, Ill., November 10, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

SOME OF THE CAUSES OF PULMONARY CONSUMPTION VIEWED FROM A DARWINIAN STANDPOINT.[1]

BY THOMAS J. MAYS, M.D.,
OF PHILADELPHIA.

THE most competent authority of the present day, Mr. Herbert Spencer, defines life as "a continuous adjustment of internal to external relations," and qualifying this he says that "the degree of life varies as the degree of correspondence between it and its environment." It is not necessary to illustrate the truthfulness of this definition to any great extent, for the development of muscle in the athlete's arm, the thickening of the epidermis on the laborer's hands, the callosity of the gums resulting from the loss of teeth, cardiac hypertrophy due to obstruction in the circulation, eyeless fishes inhabiting subterranean waters, the long-sighted countryman as compared with the near-sighted townsman: all attest the correctness of these observations.

While it is true that life as a whole depends on an adjustment of internal to external relations, it is also true that the same adjustment takes place between any part of life and its immediate surroundings. For if from any cause, either external or internal, the normal or ordinary course of an organ or of its function is enhanced, collateral changes supervene in neighboring organs. In the undue development of the athlete's arm it is not alone the muscular tissue which is implicated in the process, but the bones of the arm, especially the points of insertion for muscles, and every subjacent organ become enlarged. The hypertrophied textures demand a larger amount of nutritive material, and this in turn demands greater facilities for supplying the same, which implies not only more blood and larger bloodvessels in the part, but also a greater capacity of the heart and of the whole circulatory system.

The same delicate adjustment which exists between the eye and light, between the ear and sound, also exists between the lungs and the atmosphere; indeed, the evolution hypothesis demonstrates that the many varied organs of the animal body are but the creatures of a differentiated environment. The respiratory organs pass through a certain well-defined process of evolution, and while it is true that in man the respiratory function is carried on with highly specialized organs, this is not the case throughout the animal world; for in very lowly developed organisms respiration is performed by the cutaneous surface of the body, while in those of a somewhat higher type there appear special vascular spots in the skin which facilitate the exchange of gases. Then as complexity of structure increases, the respiratory function of the skin is supplemented by a special respiratory apparatus which differentiates from the wall of the alimentary canal in the shape of an air bladder, and which in the higher vertebrates evolves into the highly complex respiratory organs. It must not be forgotten that even in the highest animals the lungs do not monopolize the function of respiration exclusively, for the human skin is capable of absorbing $\frac{1}{150}$th as much oxygen, and of eliminating $\frac{1}{220}$th as much carbonic acid as the lungs.

The lungs, therefore, are organs of absorption and of excretion, are intimately connected with the atmosphere on the one hand and the blood on the other, and are subject to the same law of development through exercise as are other organs. This is not only abundantly illustrated in those who expand their lungs through systematic training, but also in those who inhabit elevated regions. The Quichua Indians, who dwell on the lofty plateaus of Peru, are a good example of this. By constantly living in and respiring the rarefied atmosphere of this region their chests acquire enormous dimensions, and the air cells of their lungs become more numerous and capacious.

While physiological exercise strengthens an organ, disuse favors its impairment. This is supported by many clinical and physiological facts. Destruction of a nerve or of a bloodvessel leads to atrophy of all the dependent textures. "Reugger attributes the thin legs and thick arms of the Payaguas Indians to successive generations having passed nearly their whole lives in canoes with their lower extremities motionless. Other writers have come to a similar conclusion in analogous cases" (Darwin, *Descent of Man*, p. 32). In the high table lands of Peru there lives a tribe of Indians, which is closely allied to the Quichua tribe, the bodies of many of whom have been carefully measured by Dr. Forbes, with the result of showing that, as in the case of the Quichua Indians, their chests are developed out of all proportion to the rest of their bodies; and he, moreover, states that the people are so thoroughly acclimated to their cold and elevated abodes "that when formerly carried down by the Spaniards to the low eastern plains, and when now tempted down by high wages to the gold-washings, they suffer a frightful rate of mortality" (Darwin's *Descent of Man*, p. 35). Nevertheless, Dr. Forbes found a few families on the low lands who had survived for several generations, but the increased size of the thorax so characteristic of their progenitors on the high elevations had materially decreased, although they still showed some enlargement.

What is the probable condition of a lung or a part of a lung suffering from the effects of disuse? This can only be conjectured, for we have no exact data on which to base a reliable opinion. We have com-

[1] Read before the Philadelphia County Medical Society, November 10, 1886.

plete knowledge, however, of acquired atelectasy—a condition of complete collapse of a portion of lung owing to occlusion of the bronchus leading to it, and this gives us a picture, at least, of what is possible under such circumstances. In the acquired form of atelectasy the pulmonary capillaries, differing from the congenital form, are profusely developed already, and when the atmosphere is cut off the alveolar structure of the lung collapses, the elastic fibres of the framework contract and so form a mechanical barrier to the pulmonary circulation. The blood-flow, therefore, becomes sluggish, the blood accumulates, and the part becomes hyperæmic and gives to that portion of the pleural surface a dark, flesh-colored tint.

We have no evidence for believing that mere disuse of any portion of lung structure is followed by such decided pathological changes as those outlined in the last paragraph, yet there can be no doubt that something akin to it must necessarily develop where the expansion of a portion of lung is habitually at fault. Such a lung is practically partially deprived of air, and, therefore, in a state of semi-collapse and hyperæmia, and more vulnerable to disease than its more active neighboring parts. This observation is very applicable here when we reflect that on account of a peculiar downward direction of the bronchial tubes there is an unequal rate of expansion of the lungs. The base and middle portions always expand before the apices, and the latter only expand fully toward the end of a deep inspiration. We see, therefore, that, owing to their inactivity, the apices offer the strongest inducements for the lodgement of disease there, and it is precisely these territories which are notoriously liable to pulmonary consumption.

Now, whatever belief we may entertain concerning the origin of the human species, there can be no doubt that the progenitors of the present civilized race were at one time in a state of savagery, and that the gulf which separates the civilized man from the savage of to-day is no smaller than that which exists between the latter and the anthropoid ape. During the period of man's development the process of adjustment between internal and external relations has wrought such a complete revolution in his existence that his habits and customs, his civil and his social and intellectual interests are diametrically opposed to those of his savage ancestry. When we come to inquire into the causes which have brought about this difference between the savage and the civilized man, we find that, so far as his physical well-being is concerned, they consist principally in a change of occupation, of shelter, and of clothing. The occupation of the savage consists of hunting and fishing, while that of his civilized neighbor comprises the complicated industries and the varied agencies which have been evolved and accumulated during thirty centuries of intellectual development; the shelter of the savage is a rude hut, or the canopy of heaven, while that of the modern man is that of magnificent dwellings and palaces; and the clothing of the former is reduced to a minimum, while the body of the latter is covered and embellished with the most elaborate dress.

The question around which centres the greatest interest for us at present is whether the higher development of civilized man has in all respects resulted advantageously; or rather, whether the adjustment of his internal to his external relations is beneficial to his respiratory organs. This can unhesitatingly be answered in the negative. There is no reason for believing that civilized man requires less air for breathing purposes than his savage brother, yet by spending more than half of his lifetime in poorly ventilated dwellings, there can be no doubt that the former receives much less than the necessaries of his life demand. Especially does this observation become pregnant with meaning when it is linked with the facts that the lungs in improved breeds of cattle, which naturally take little exercise and are domiciled much of their time, "are found to be considerably reduced in size when compared with those possessed by animals having perfect liberty" (Darwin, *Animals and Plants*, vol. ii. p. 361), and that the vital lung capacity is smallest in persons who lead sedentary lives, such as professional men, students, clerks, etc., and the greatest in those who follow an outdoor occupation, such as sailors, recruits, etc. It is also true that the vital lung capacity of non-singers is less than that of singers (Waldenburg).

Then again, when we reflect that civilization consigns the great majority of its members to occupations which are carried on indoors, and which in many instances are of a sedentary character, where, besides breathing a vitiated atmosphere, the free expansion of the chest is hampered by a bent and cramped position of the body, it does not require a very vivid imagination to realize that the respiratory organs soon begin to suffer from the consequences of disuse and fall a prey to that pathological condition which was pictured in the early part of this paper.

These deductions are amply confirmed by the statistics which have been obtained concerning the influence of occupation as a causative factor in pulmonary consumption. In the report of the Brompton Hospital for Consumption, in London, for the year 1849, a number of tabular views are given, one of which is here presented (copied from Ancell' *Treatise on Tuberculosis*, pp. 497, 498):

Dr. Ancell (*loc. cit.*, p. 501) states that from other statistics we are enabled to draw the following conclusions: That in Paris, Geneva, Vienna, and Hamburg there are a greater number of persons leading a sedentary life afflicted with consumption than of those leading an active life, in the proportion of 141 to 89; and that a bent posture appears to augment the frequency of the development of phthisis.

An exchange of outdoor life for one of confinement frequently leads to pulmonary consumption, as is attested by the following facts: Animals transported from both warm and cold climates to the menageries and zoölogical gardens of our great cities persistently die of pulmonary consumption. The natives of the East show but little liability to the disease in their own climate, but when serving as soldiers in Ceylon and China, where they are confined in barracks, they become exceedingly susceptible to it. The negroes are comparatively free from it in

TABLE XXIII.—SHOWING THE TRADES AND OCCUPATIONS OF 4358 PATIENTS LABORING UNDER PHTHISIS TREATED AS IN- AND OUT-PATIENTS, FROM SEPTEMBER, 1842, TO DECEMBER 31, 1848.

MALES—Total, 2682.

Indoor.		Outdoor.		Mixed.	
Clerks, warehousemen, and shopmen	314	Laborers of various kinds	490	Carpenters	120
Mechanics	270	Coachmen and cabmen	109	Painters and glaziers	73
Servants	237	Butchers	15		
Tailors	192	Various occupations	184		
Shoemakers	127				
Printers and compositors	104				
Weavers and glovers	22				
Bakers	45				
Various	146				
No occupation, or under 15 years	234				
Total	1691	Total	798	Total	193

FEMALES—Total, 1597.

Indoor.		Outdoor.	Mixed.
Servants, or persons engaged in indoor occupations	836	None.	None.
Milliners, dressmakers, needlewomen, and strawbonnet makers	312		
Laundresses	10		
No occupation, or under 15 years	439		
Total	1597		

their native climate, but when transported to foreign countries, especially as slaves or prisoners of war, the mortality from consumption is frightful among them.

The natives of Van Dieman's Land furnish an appropriate illustration of the effects of a sudden change of environment on the human constitution. These savages in their native state had the reputation of being free from pulmonary consumption before the advent of the white race. But Ancell (*loc. cit.*), to whom we are indebted for many interesting facts, says that, according to Dr. Power, on account of their frequent depredations the white settlers confined them on an island in Bass's Straits and furnished them with

"provisions, clothing, dwelling places, and proper superintendents. But to a wandering race accustomed to rove at will through a large and extensive country, to procure their food, as they pleased, by hunting and fishing, and, regardless of dress, to live where and how they liked, this confinement to a narrow little island, and immediate change of their own free and unfettered habits to the more constrained and artificial ones of civilized life, proved speedily fatal. They died in great numbers, and the majority from pulmonary consumption."

"It is probable," quoting from the same authority (p. 542), "that one-fourth of the Europeans who migrate to the East Indies are hereditarily affected with the tuberculous predisposition, and yet a very small proportion indeed fall into active tuberculosis, or die of any form of the disease. The disease being also comparatively infrequent among the inhabitants, it becomes a great question whether the qualities of the climate, or the modified habits of the inhabitants and of emigrants, have most to do with this exemption. The circumstances of air, etc., of Europeans in London, and in Calcutta or Bombay, contrast greatly. The comparatively small and close rooms, the mode of heating apartments in England, the imperfection of ventilation in towns, streets, and houses, the great number of hours spent within doors, in close sleeping rooms, and in close carriages, present all the elements for the production of the disease here; while the more spacious apartments, and the outdoor habits, the habits of complete ventilation, and of almost constant exposure to the open air, are totally opposed to its production in the East; and where we find that the result of the withdrawal of these sanitary influences, even in the East, is the production of the disease, as in the case of half-caste and natives, and in the interior of jails, it becomes probable even here that the climate may have but a secondary importance in reference to etiology. . . . In fact, the statistics lead to one general conclusion, viz., that as respects the etiology, the habits and customs of mankind ride over all climatic influences; that if the European inhabitants of Calcutta or Alexandria were to adopt the modes of life pursued in the metropolis of the British Empire (London), tuberculosis would, after a period, be as frequent in those localities as it is here; and conversely, if the inhabitants of the densely populated countries of Europe were to improve their habits and customs as to labor and rest, indoor and outdoor occupation, the size, construction, modes of ventilation and sites of their houses, streets, and towns, with other circumstances of hygiene, after a sufficient period had elapsed for hereditary influence to wear itself out, that they would probably be more free from this disease than the inhabitants of Lapland, Canada, Greenland, India, Egypt, or Ceylon."

We have thus far briefly considered the influence of occupation and shelter in their relation to man's pulmonary organs, and hope we have given proof to show that the baneful effects of a sedentary and cramped position of the body, of breathing a vitiated atmosphere, and of an impediment to free respiratory activity, incidental to the transition period from savage to civilized life, have so far modified these organs that in many instances man has been unfitted and unable to maintain a prolonged struggle in the battle for existence. It is evident, however, that in this process of elimination to which the human family is subjected, the weak will fall a prey to it first, and that the bad effects of adjustment may be sufficiently counterbalanced in the strong as well as in the weak to enable them to survive the operation; hence, in order to be able to counteract them by artificial means, it is of the greatest importance to inquire into the causes which create a tendency to weakness in this direction. Of all the causes there is probably none which is more potent to produce a predisposition of this kind than that of reproduction, and the remainder of this paper will be devoted to a discussion of a few of the more salient points of this process.

There can be no doubt that there is a direct an-

tagonism between nutrition and reproduction, for "reproduction is a form of nutrition and a growth of the organism to a size beyond that belonging to it as an individual, so that a part is thus elevated into a new whole" (Haeckel, *Generelle Morphologie*, vol. ii. p. 16). Herbert Spencer, in writing of the antagonism existing between growth and sexual genesis, says: "Whether a deduction is made from one parent or from two, whether it is made from any part of the body indifferently, or from a specialized part, or whether it is made directly or indirectly, it remains in any case a deduction, and in proportion as it is great or frequent or both, it must restrain the increase of the individual (*Principles of Biology*, vol. ii. p. 428). From these principles it follows that reproduction is most perfect when growth is completed and before bodily decay sets in; that the higher the rate of nutrition during the reproductive period the higher the rate of reproduction; and that if the bodily expenditure is greater for other purposes than for reproduction there is a corresponding deduction from the resources which would otherwise be devoted to the maintenance of the latter process. In other words, offspring will be, if other things are equal, most vigorous when the growth of both parents is complete and the state of nutrition good; and least vigorous and most prone to decadence when the state of nutrition of the parents is low, when their expenditure for other purposes is great, or when reproduction takes place rapidly or follows at short intervals, or takes place before the body is fully developed, or during the period of bodily decline. All other things being equal then, the last or the youngest children, as well as those who are born before the bodies of the parents are fully developed, should be the weakest, and those born during the remainder of the reproductive period should be the strongest.

We have before us a most interesting work[1] (to which we are very much indebted for many of the ideas suggested in this paper on the relation between reproduction and pulmonary consumption) on the etiology of pulmonary consumption, in which are related the histories of five hundred cases of pulmonary phthisis—giving the age of the patient, the number of children in patient's parents' family, order of patient's birth, number of children in grandfather's family, father's side; also, in that on the mother's side, and, in many instances, the order of birth of both father and mother. We have taken the liberty of analyzing four hundred of these cases, in order that their conspicuous bearings will be more readily perceived, and, also, for the purpose of showing to what extent they verify the above deductions on the relation between reproduction and pulmonary consumption. The results of this analysis are as follows:

The first one hundred cases are patients who come from numerous families, average size of each, 9.87, and whose fathers and mothers came from rather small-sized families, averaging 4.96 and 4.69 respectively, and who were free from every trace of phthisis. About seventy-five per cent. of the patients are the youngest, or belong to the youngest members of their families, none of the older ones being affected.

The second one hundred cases are patients who come from rather small families, the average size of which was 5.52. Their fathers and mothers were healthy, and without a taint of phthisis, but all came from large families, averaging 7.72 and 7.18, respectively, and about seventy five per cent. of them were the youngest members, while very few belonged to the oldest or even the older members of their respective families. Thus, in fifty-four instances, so far as the statistics show, was the father the youngest, and in twenty-four instances the second youngest; thus seventy-eight per cent. were the youngest and second youngest, while there were no oldest, third or fourth oldest, and only one second and one fifth oldest among them. On the mother's side, in fifty-seven instances she was the youngest, and in eleven instances the second youngest, while there was no mother among the second, third, fourth or fifth oldest, but four were the oldest members of their families. In three of the last four instances, however, she was the only child. The patients themselves are principally the products of the beginning and of the termination of the reproductive period, especially of the former, while those of the middle period are comparatively exempt. Thus, of the whole number, twenty-nine are the oldest, and twenty are the youngest of their families.

The third one hundred cases can be considered most conveniently in two sections of fifty cases each. These are cases which occurred in families the parents and grandparents of which were healthy, and in most instances became aged; but the children, who are the patients, manifested a scrofulous tendency in youth. The first fifty cases occurred in families, the children of which were rather numerous, averaging 9.48 per family, whose fathers and mothers came from medium sized familes, averaging 6.54 and 6.86 per family respectively. More than two-thirds of these patients belong to the youngest or younger members of their families, while the older remain almost entirely unaffected. These cases are analogous to the first one hundred cases just related. The second fifty cases occurred among families, the children of which were less numerous than those of the first fifty cases, averaging only 6.70 per family. The fathers came from families of rather larger size than were the families of the first fifty, averaging 7.76 per family; while the mothers came from families of the same average size as those of the first fifty cases (6.86 per family). The patients, like those of the second one hundred cases, came principally from the oldest and the youngest members of their families, especially from those of the former, while those coming from the middle of the reproductive period remained comparatively free.

The fourth one hundred cases are patients, either of whose parents or some of their near relatives suffered from pulmonary phthisis. They are children of small families the average size of which was 5.96; but both their fathers and mothers belonged to large families, these averaging 8.78 and 6.04 respectively.

[1] Die Aetiologie der Chronischen Lungenschwindsucht, von Dr. Hermann Brehmer, sen. Berlin, 1885.

Here again the victims belong chiefly to the two extremes of the reproductive period, and the products of the intermediate period are comparatively free, although less free than in any of the previous sets of cases.

The analysis of these four hundred cases, among other things, shows very clearly—

1. That not all the members of large families are equally vigorous and alike resistant to pulmonary consumption, and that, as a whole, they are less vigorous than those of smaller families.

2. That the youngest members of numerous families, provided their parents are healthy and come from small families, are most liable to pulmonary consumption. This is illustrated in the first one hundred, and in the first fifty of the third one hundred cases.

3. That both the youngest and the oldest members of small families are liable to pulmonary consumption, while the intermediate members are less susceptible to it, even though the parents and grandparents were healthy and became aged; provided, that either or both parents come from the youngest members of numerous families. This is well demonstrated by the second one hundred, and the second fifty of the third one hundred cases.

4. That children born of parents having phthisical antecedents are subject to the same law of liability as those children whose parents are healthy but come from the youngest of numerous families, with the exception that it is not necessary for one or both parents to come from the youngest of their families. This is clearly shown by the fourth one hundred cases.

5. That those children who are born within a year after the birth of the preceding members are more liable to pulmonary consumption than those who are born two or three years apart.

6. That children born of phthisical parents are liable to pulmonary consumption three years earlier on the average than those born of healthy parents. This is shown by contrasting the average age of the patients of the first one hundred cases with that of the fourth one hundred cases.

7. That parents with a family history of consumption are less prolific by nearly one-half than those who are healthy. This is shown by comparing the average number of children in the patient's families of the first one hundred cases with those of the fourth one hundred cases.

8. That, given a patient coming from a numerous family, of which the parents came from medium-sized or small but healthy families, we can predict that the patient is the, or one of the, youngest of the family; or, given a patient coming from a small family, of which the parents came from numerous families, and were among the youngest but healthy, we can predict that the patient either belongs to the youngest or the oldest, and not to the intermediate ones of his family; or again, given a patient coming from a small family, of which the parents came from a numerous family, but who have a phthisical history, we can predict that the patient belongs to either the older or the younger members, provided the patient's parents are not the youngest of their families; if they are the youngest, then the intermediate members are not exempt, although even then more so than those of either extreme.

In concluding this interesting subject, I hope that sufficient evidence has been brought forward to show that the environment of the modern man, so far as his shelter and occupation are concerned, is directly opposed to that of his savage progenitor; and hence through the operation of the law of adjustment of internal to external relations, his respiratory organs have been so changed as to predispose them to pulmonary consumption. I have also endeavored to show that, under certain conditions, the process of reproduction has the power of decreasing the vital resistance of the individual organism, and thus prepares it for the evolution of the same disease. Converging, therefore, both the external and the internal evidence as here given, we can, from this source alone, predict, with a great degree of certainty, which, from a certain number of individuals, are most prone to become a prey to the greatest scourge of modern civilization.

Note.—Since finishing this paper, I have collected a number of cases of phthisis coming under my own observation, accompanied by the necessary data, and all of them confirm the close relationship between reproduction and the liability to pulmonary consumption which seems to be so firmly established by the history of these four hundred cases. As soon as I have collected a sufficient number of such cases, I shall tabulate them for publication.

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AN ANALYSIS OF FORTY-FIVE CASES OF DIPHTHERIA.

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As some medical magazines have recently contained articles asserting that sundry drugs or methods of treatment were certainly, or almost certainly, curative in diphtheria, I shall not apologize for laying before the numerous readers of The Medical News, the result of an experience derived from observing forty-five cases of that grave disorder. I had at first no favorite drug or method of treatment, and while the results strongly indicate to my mind the advisability of the use of bichloride of mercury, I prefer that each physician, who chooses to read this paper, should draw his own conclusions from the data I shall furnish.

In February, 1884, an epidemic of diphtheria appeared near Fort Thomas, Arizona. It was reported on what seemed trustworthy authority that ninety or more persons had died of the epidemic within fifteen days, at a mining town not very far from Fort Thomas.

The disease gradually spread down the Valley of the Gila, and made its appearance at every settlement near that stream. The weather was warm, 70° to 90° F. at noon, and in the earlier part of the time during which the epidemic prevailed the sky was cloudless. The water supply wherever the disease appeared, was drawn from the Gila River or from shallow wells. The houses were of sun-dried

brick—adobes—small, poorly ventilated, and were usually roughly furnished within. The walls were porous, and the floors commonly of earth. The disease always progressed much more favorably when the patient's friends could be induced to allow the sick-room to be thoroughly ventilated. But among the Mexicans and most frontier people of a certain class there exists the greatest imaginable fear of air-draughts, and of taking cold. Commonly the authority of some old woman overbalanced the most stringent orders and pathetic appeals of the physician. The friends of the patient usually remained in his chamber. And as there were often as many as fifteen persons, including children, in a low-pitched room twelve by fourteen feet, with one small door and a microscopic window, there was no theoretical difficulty in accounting for the spread of the disease.

The first case which came under my observation was that of a Mexican boy, ten years of age. He was moribund when I saw him, and before my assistant could run two hundred yards to get the instruments necessary to perform tracheotomy, the boy died—thereby, no doubt, saving me from the opprobrium of performing a fatal operation. The patient's neck was swollen, the cervical and submaxillary glands hard and prominent. The diphtheritic membrane covered the fauces and lined the nasal cavity, extending over the upper lip where it had been excoriated by the discharge from the nostrils. The cause of death appeared to be asphyxia, and the operation of tracheotomy was in consequence believed to be indicated. No post-mortem examination was permitted in this or in any case.

Cases 2, 3, and 4 were children of a Mexican mother and an American father. The symptoms were the usual symptoms of diphtheria. The prostration in cases of half-breeds was always very considerable. These cases were treated by a local antiseptic application—wash and spray—a wash of lime water, and by the internal administration of this mixture.

R.—Potass. chlorate	ʒj.
Muriated tinct. of iron	ʒij.
Quinia sulph.	gr. xv.
Sodium hyposulphite	ʒj.
Alcohol	ʒj.
Water	q. s. ʒvj.—M.

One or two teaspoonfuls were given three times a day.

I found this prescription in an article by Dr. F. Peyre Porcher, and it did me yeoman's service. Dr. Porcher said he believed this mixture possessed the virtues of a prophylactic against diphtheria, but requested that those who used it for this purpose should report their success or failure. I regret to be compelled to state that in no case was any individual saved from an attack of diphtheria by taking this mixture, provided he remained in the room or house in which there was a case. The remedy was thoroughly tried in at least twenty cases, but proved of no value as a prophylactic. After the development of the disease the remedy seemed to me to be of very great value.

Of these three cases, 2, 3, and 4, 2 and 4 recovered while 3, who seemed least ill of all, died suddenly. A Mexican girl, aged ten, also died suddenly. These two fatal cases appeared to die from failure of the heart's action due to paralysis.

Case 10 was that of a frail girl, eight years of age. Her throat was much swollen, and the fauces were choked with membrane, which exhaled a horrible stench. She died within twenty-four hours after the disease declared itself. Lime water, applications of various antiseptics, full doses of Porcher's mixture and of stimulants were used in vain in this case.

Case 11 was that of a robust girl of six years. She received the same treatment which Case 10 received, and likewise died. Case 12 was the younger brother of the girl mentioned as Case 10, and when seen was equally as ill as she. He received one-sixty-second of a grain of corrosive sublimate, and began to improve after taking the first dose. He made a good recovery. Cases 14, 15 16, 17, 18, 19, and 20 occurred in the same family. Here the prophylactic effect of Dr. Porcher's prescription was *nil*. Bichloride of mercury was used internally and locally from the beginning of the disease in all of these cases. All made good recoveries. Cases 21, 22, 23, and 24 occurred in one family in spite of the persistent use of Dr. Porcher's prescription. Bichloride of mercury was used internally in these cases, and all recovered. One suffered from paralysis of accommodation for some months. Cases 25 to 31 inclusive recovered under the internal administration of the bichloride of mercury, but two of these cases suffered from paralysis of accommodation. Case 32 was a robust soldier. As the case was a mild one, Porcher's prescription alone was used. The patient recovered, but twelve months later was suffering from paralysis of the soft palate, which appeared a few days after he began to suffer from diphtheria. His voice had a muffled nasal sound, and when he attempted to swallow liquids, they would regurgitate through the nose.

Case 33 recovered under the bichloride treatment with temporary paralysis of the lower limb. Case 34, under the same treatment, recovered with paralysis of accommodation. Cases 35 to 45 inclusive, were treated with bichloride of mercury internally, and all made good recoveries, with three cases of temporary accommodation-paralysis (one accompanied by paralysis of the soft palate), and one of temporary partial paralysis of the lower limb accompanied by formication. In one of these cases, acute gastritis was set up by the bichloride of mercury.

The following table exhibits the results of the treatments.

Thirty-three cases treated by bichloride of mercury gave no deaths, but 12 paralyses, not one of which was permanent. All of these cases of paralysis were among children. The 11 cases treated by other remedies gave 4 deaths and 1 permanent paralysis. The case of permanent paralysis was the case of a man aged twenty-six years.

In considering the number of cases successfully treated by the bichloride of mercury, it is well to bear in mind that these cases occurred later in the epidemic than those treated by other methods.

No. of case.	Sex.	Age.	Condition when seen.	Treatment.	Result.	Sequelæ.
1	Male.	10 years.	Moribund.	Nil.	Death.	
2	"	3 "	Not very ill.	Dr. Porcher's prescription, and antiseptics locally.	Cure.	
3	"	5 "	" " "	" " " "	Died suddenly.	
4	Female.	7 "	Very ill.	Same as Cases 2 and 3, and stimulants.	Cure.	
5	"	15 "	Not very ill.	Same as Cases 2 and 3.	Died suddenly.	
6	Male.	12 "	" " "	" " " "	Recovered.	
7	"	5 "	Very ill	" " " "	"	
8	"	10 "	Not very ill.	" " " "	"	
9	Female.	6 "	" " "	" " " "	"	
10	"	8 "	Very ill.	Same and stimulants.	Died.	
11	"	6 "	Not very ill,	" " "	"	
12	Male.	6 "	Very ill.	Bichloride of mercury.	Recovered.	
13	Female.	15 "	" "	" " "	"	Paralysis of accommodation.
14	"	6 "	Not very ill.	" " "	"	" " "
15	Male.	8 "	" " "	" " "	"	
16	"	12 "	" " "	" " "	"	
17	"	17 "	" " "	" " "	"	
18	"	20 "	Very ill.	" " "	"	
19	Female.	3 "	Not very ill.	" " "	"	
20	"	40 "	Very ill.	" " "	"	
21	"	4 "	" "	" " "	"	
22	"	6 "	Not very ill.	" " "	"	Paralysis of accommodation.
23	"	12 "	" " "	" " "	"	
24	"	36 "	" " "	" " "	"	
25	"	20 "	" " "	" " "	"	
26	Male.	6 "	" " "	" " "	"	
27	"	8 "	Very ill.	" " "	"	
28	"	28 "	Not very ill.	" " "	"	
29	Female.	10 "	" " "	" " "	"	Paralysis of accommodation.
30	"	8 "	Very ill.	" " "	"	
31	Male.	14 "	Not very ill.	" " "	"	Paralysis of accommodation.
32	"	26 "	" " "	Dr. Porcher's prescription,	"	Paralysis of soft palate.
33	"	13 "	" " "	Bichloride of mercury.	"	Paralysis of legs.
34	Female.	13 "	Very ill.	" " "	"	Paralysis of accommodation.
35	Male.	1 "	Not very ill.	" " "	"	
36	Female.	8 "	Very ill.	" " "	"	Paralysis of lower limbs, nervousness, and formication.
37	Male.	6 "	Not very ill.	" " "	"	Paralysis of accommodation and of soft palate; and
38	Female.	4 "	Very ill.	" " "	"	Acute gastritis due to poisoning by bichloride of mercury.
39	"	18 "	Not very ill.	" " "	"	
40	"	15 "	Very ill.	" " "	"	Paralysis of accommodation.
41	"	12 "	Not very ill.	" " "	"	
42	Male.	8 "	" " "	" " "	"	Paralysis of accommodation.
43	"	6 "	" " "	" " "	"	
44	"	28 "	" " "	" " "	"	
45	"	32 "	" " "	" " "	"	

Some of these, however, were as severe when first seen as any from Cases 2 to 11 inclusive. Case 38 was as ill as any patient I have seen recover.

The success attending the use of bichloride of mercury would have led me to believe that many of the cases treated with this drug were cases of pharyngitis, if paralysis had not frequently occurred.

The diphtheritic membrane usually began to come away in from two to four hours after the administration of the bichloride of mercury. The dose varied from one-twenty-fourth to one-sixty-second of a grain, according to age and effect.

COLUMBUS BARRACKS, OHIO, September 16, 1886.

BELLADONNA POISONING.

BY J. H. BRADSHAW, M.D.,
OF ORANGE, N. J.

WE not infrequently hear of very large doses of medicine being taken by mistake, and a toxic effect, naturally expected, failing to ensue. It is quite common to ascribe this fortunate failure of symptoms of poisoning to put in their appearance to the diminished strength of the drug taken. I have heard of a teaspoonful of tincture of aconite being taken by a small child, without giving any alarm to the family. The case I am about to report can hardly be classed as one in which dangerous symptoms failed to appear because of a poor preparation of drug used, as the one taken was the normal liquid of belladonna leaf (Parke, Davis & Co.).

A patient, a young lady to whom I had given a mixture containing belladonna for asthma with good results, came to my office, stating that her medicine had been lost, and that she desired a new prescription. This I gave her, and, as she was unable to have it filled at the drug-store that night, and was suffering from her complaint, I handed her about two drachms of the normal liquid of belladonna, telling her to take five drops in water before going to bed. As she had been accustomed to take her other medicine in teaspoonful doses, she disregarded

the new directions, and, upon retiring, took an overflowing teaspoonful of the drug. The dose was taken at ten o'clock. Soon after eleven, the mother of the patient was awakened by the labored breathing of her daughter, and becoming instantly alarmed at her pallid appearance, summoned her physician. I arrived about two hours after the drug had been taken. There had been no vomiting, and when I reached the room the patient was standing in the middle of the bed, highly delirious, swaying from side to side, respiration difficult, and sobbing, heart beating about 120 to the minute, and the radial pulse extremely feeble. A small rim of iris surrounding an extremely dilated pupil instantly gave the diagnosis. Although a sufficient period of time had elapsed since the dosage for most of its absorption, still my first efforts were made in causing emesis. Unfortunately, I had no access to apomorphine, and had to resort to such agents as mustard and yellow sulphate of mercury, by the mouth. After struggling with the patient for a long time in vain attempts to make her swallow, efforts of this kind were abandoned, and a half grain of morphine was given hypodermatically.

I have struggled with the delirium of fevers, and with the delirium of tremorous drunkards, but I never before met a patient so violent as was this poor girl. I remained with her the remainder of the night, and repeated the morphine in quarter grain hypodermatic doses; I do not now recall exactly how many, probably *half a dozen*. The morphine acted beneficially almost from the first, and the patient, toward morning, went into a slumber, respirations falling to ten per minute about five o'clock.

The next day the patient dressed herself, and spent the greater portion of it upon a sofa, and in a few days was as well as ever. It is interesting to add that for about six months the patient had no attack from her asthma.

MEDICAL PROGRESS.

ACUTE PNEUMONIA IN UTERO.—DR. HENRY STRACHAN writes to the *British Medical Journal* of November 6, 1886:

I am not aware whether the following case is the first recorded. I have been unable to find any account of a similar one, but whether that be so or not, it seems to me of great interest, and worthy of being placed on record,

A patient, Nancy M., was admitted into the hospital under my care in December last, suffering from acute pneumonia (whole of left lung), and a history of illness covering the four days previous to admission. She was eight months pregnant. On the evening of the day of admission, her temperature was 103.6° Fahr., and she was delivered of a female infant. The infant died in less than twenty-four hours after birth, with symptoms of acute pneumonia. A post-mortem examination showed acute pneumonic consolidation of the whole of the left lung. The mother made a rapid and good recovery.

Whilst there is ample evidence that the other acute specific diseases (so-called "fevers") are capable of being transmitted by the pregnant woman to her offspring yet *in utero*, this is the first time I have had any evidence that the "acute pneumonic fever" could also be so transmitted.

GALVANOPUNCTURE IN GYNECOLOGY.—APOSTOLI has formulated the following practical rules in regard to the employment of galvanopuncture in gynecological practice:

1. In the treatment of either the uterine parenchyma or of the periuterine cellular tissue, great care should be exercised that the peritoneum be not implicated in the puncture.

2. Facilities for the elimination of the products of suppuration should be maintained, in order to avoid injection, and to permit of local antiseptic treatment.

3. Short punctures, of one to two centimetres (five to ten lines), are always preferable to those of greater depth.

4. The bladder should always be carefully sounded in all directions, in order to avoid its implication.

5. In all cases of lateral or posterior puncture, the localities of arterial pulsation should be determined by digital examination, and the perforation of the larger vessels carefully avoided.

6. Enforced rest in bed, of from one to several days, is demanded of all patients thus treated.

7. Before and after each puncture, an antiseptic vaginal injection is given, and a tampon of iodoform gauze is to be retained in the vagina until the complete cicatrization of the orifice of the puncture is effected.

8. All sexual approach is prohibited until the cure is complete.—*L'Union Médicale*, Oct. 19, 1886.

CANTHARIDES IN THE BITES OF RABID ANIMALS.—DR. KARCHEVSKI mentions in the *Russkaya Meditsina* that he has successfully treated some patients who had been bitten by a rabid wolf with cantharides. The wolf attacked three men, inflicting on the first a large and deep wound in the left groin, a piece of skin several square inches in area being torn off. The other men were wounded in the face, legs, and arms, but more superficially. Still the bites of a rabid wolf are well known to be peculiarly dangerous. Dr. Karchevski remembered a conversation he had had with Professor Lashkevich, in which the latter had suggested cantharides as a remedy in hydrophobia, and he therefore made up his mind to give it a trial. Cantharides plasters were applied to all the wounds, and powdered cantharides was administered to each of the three patients in doses of a grain a day. The internal administration was continued for a week, until the patients complained of some heat in the urethra. Seven months having passed, and all the patients being still perfectly healthy, the author thinks the case worth recording, though he is quite aware that *post hoc* is not necessarily in this instance *propter hoc*.—*Brit. Med. Journ.*, Nov. 6, 1886.

ANTI-DIARRHŒIC PILLS.—TROUSSEAU recommends the following formula in rebellious cases of diarrhœa which have resisted treatment by salines:

R.—Powdered ipecac.	. . .	gr. viij.
Extract of opium,		
Calomel		āā gr. iss.

To make twenty pills.

The dose, one to three pills daily, is continued for a week or longer.—*L'Union Médicale*, Oct. 24, 1886.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, NOVEMBER 27, 1886.

THE INOCULATION OF TUBERCULOSIS BY OPERATIONS FOR ITS RELIEF.

UNTIL very recently it seemed as if the indications for operation upon tuberculous foci in the bones and joints had been clearly laid down, and the propriety and usefulness of such operations had been fully established. But in the Thirteenth Congress of German Surgeons, KÖNIG called attention to the possibility of surgical interference hastening the death of a patient by becoming the means of inoculation of the specific virus, or specific germ, of tuberculosis, thus leading to the rapid development of acute miliary tuberculosis.

At the last Congress VOLKMANN also recognized and admitted this possibility, but no systematic and complete presentation of the relative frequency of such an unfortunate issue to operations intended to be strictly conservative had as yet been presented. The first attempt in this direction has been recently made by WARTMANN, of St. Gallen, who, at the suggestion of Feurer, has used the material of the latter's service in the hospital at St. Gallen, as a basis for an elaborate study of the relation of operations upon tuberculous joints to subsequent outbreaks of general tuberculosis. To this material Wartmann has added an analysis of all the reliable reports bearing upon the matter which were accessible to him, and has embodied the results of his work in an admirable paper published in the *Deutsche Zeitschrift für Chirurgie*, Bd. xxiv. Hefte 5 und 6, 1886.

In this paper Wartmann restricts himself to a study of the relation of resections to the outbreak of acute miliary tuberculosis. He gives a detailed account of the history of 74 cases in which Feurer performed such operations for tuberculous disease of the joints. Of these, 1 was done at the shoulder-joint, 10 at the elbow-joint, 3 at the wrist-joint, 18 at the hip-joint, 38 at the knee-joint, and 4 at the ankle-joint. In the whole series there were eleven deaths while the patients were under observation, and one followed five months after a resection of the elbow-joint, the patient having pronounced lung disease at the time of the operation. Two followed resection of the wrist-joint; one occurred three months after the operation in a miserable patient with lung disease at the time of the operation; and one occurred ten months after the operation in a patient who had a number of tuberculous foci so old that they could not be attributed to inoculation by the operation. Four deaths followed resection of the hip-joint; one from acute carbolic acid poisoning; three from chronic tuberculosis at periods of two years, one year, and nine months, respectively, after the operation; and one died in seven days after the operation with fresh miliary tubercles in the lungs and small caseous foci in the pericardium, besides tubercles elsewhere. This case, Wartmann thinks, may have been one of inoculation at the time of operation. We cannot admit as much without question, since the patient had before the operation a large abscess above Poupart's ligament, and after the operation vomiting on the second day, with evidence in the urine of carbolic acid poisoning. There can be little doubt that the operation hastened the patient's death; but we think it very questionable if the fresh tubercles in the lungs, or the recent pleurisy with bloody effusion ought to be attributed to inoculation at the seat of the wound. May not the inoculation have arisen from the caseous foci in the pericardium under the influence of the vomiting and the depression of carbolic acid poisoning?

Hartmann records, further, two deaths after resection of the knee-joint. One of these occurred five months later from erysipelas attacking a fistula, which remained after the operation. The other death occurred three and a half months after the operation, in a thin and feeble girl, who had no other evidence of general tuberculosis at the time of the operation. At the time of death the patient had cavities in both lungs and tuberculous ulcers in the bowels. This case Wartmann properly excludes from his list of acute tuberculosis due to inoculation, although he thinks that some bacilli may have found their way to the lungs and bowels in this way. After resection of the ankle-joint, one death is here recorded. The patient was a well-nourished boy, four years old, with slight enlargement of the glands of the neck and of the groin of the affected side. About three weeks after the operation the patient had an attack of pleuro-pneumonia, from which he

recovered. Three and a half months after the operation symptoms of basal meningitis appeared, and the lad died two weeks later, having tubercles in the pia mater and in one lung. Wartmann classes this case with the one of death after resection of the hip-joint, mentioned above, as being possibly instances of inoculation from the wound. But we may say of this case what we have said of the other, that we cannot admit as much as Wartmann does in regard to it. Both cases are open to the same objection which we urged in THE MEDICAL NEWS of April 3, 1886, in regard to two cases of so-called inoculation of wounds with tuberculosis, reported by Kraske in November, 1885.

Wartmann adds to the statistics of the hospital at St. Gallen 763 cases of resection of joints for tuberculous disease, collected from other sources, with 214 deaths, and of these 24 were due to acute miliary tuberculosis. This makes a total of 837 cases, with 225 deaths, of which 26 may be attributed to infection from the operation wound. Wartmann does not venture to generalize much upon these figures, but he very sensibly suggests the collection of the statistics of a large number of cases treated without operation, with which to institute a comparison.

We may go a little further than does the author, and point out the relative infrequency of even a presumable inoculation by operation. Only about one-tenth of all the deaths are attributed to this cause, and only a little more than three per cent. of the whole number of patients can be supposed to have lost their lives by this accident. When to this we add the fact that König, in his *Die Tuberculose der Knochen und Gelenke*, 1884, reports only about sixteen cases in which infection followed operation, among the many thousand cases treated in the hospital at Göttingen, and that Volkmann and Ollier, with their very large experience, have observed it so rarely that it has not until recently attracted their special attention, we cannot but conclude that while the subject is eminently worthy of serious and careful study, the danger of setting up general tuberculosis is not a formidable objection to operation for the relief of tuberculous disease of the bones and joints.

In conclusion, we would call attention to one of the most interesting points in connection with Wartmann's paper, namely, the evidence it furnishes that the limitations of a comparatively small hospital offer no insuperable obstacle to valuable work. Careful study of a few cases under personal observation, joined with an examination of what has been published by others in regard to similar ones, will enable even the most modest worker to add—as Wartmann has added—a worthy contribution to the common fund of surgical knowledge.

BRIGHT'S DISEASE AND APOPLEXY.

THE condition of the arteries is an index of a man's age. He is old or young, the prospects of life are bad or good as these vessels are hard or soft, stiff or elastic. The circulatory apparatus is nothing more than an elaborate system of supply tubes with the heart as a central pumping station, and the kidneys as waste pipes of elaborate and peculiar construction. So close in health is the functional relation of these three parts—heart, arteries, and kidneys—that we almost naturally expect to find them associated together in disease.

Although the broad clinical and anatomical fact of the close connection of certain chronic forms of renal disease with cardio-vascular changes is universally recognized, yet the precise mode of relationship is still under discussion. Unquestionably in a majority of cases the renal trouble is primary, while the changes in the heart and vessels are secondary to it. But there are instances in which the chronic nephritis seems a sequence of the arterial disease. It has been for years a matter of common observation that a large proportion of all cases of hemorrhage into the brain were in persons with arterial degeneration and kidney disease of the form known as interstitial nephritis. This is essentially a slow, progressive malady, insidious to a degree, creeping on from year to year, producing, perhaps, but few symptoms, and in too many instances the patient, without warning, is seized with serious illness which may prove quickly fatal.

The cardio-vascular changes which this form of Bright's disease brings with it are of the utmost importance with reference to apoplexy, one of the most common events in this condition. The tension of the blood in the arteries is increased, and the pulse is felt to be hard and incompressible. The existence of this so-called renal pulse may give a cautious physician the first clew to the nature of the trouble. The vessel walls also become harder and less elastic, the condition described by Gull and Sutton as arterio-capillary fibrosis. The arteries of the brain are very prone to participate in this change. Lastly, the heart hypertrophies and supplies a force capable of maintaining sufficient pressure in the diminished capillaries of the kidneys to furnish the full quota of urine; with variations in the frequency with which certain symptoms, such as œdema, occur, these are the essential features in the history of most cases of chronic interstitial nephritis.

The recent death from apoplexy of an eminent citizen, who had for some time been the subject of this form of renal disease, illustrates forcibly one of its most formidable dangers. We have gradually come to regard the disease as a very chronic malady, lasting for years, and with which the individual, if careful, may enjoy a fair measure of health, and

even do active work, but if once fully established, there are risks of accidents, of which cerebral hemorrhage is the most serious.

On the occasion of the death of Vice-President Hendricks we called attention to the intense wear and tear of political and business life in this generation as tending to induce arterial disease, and the same is an important factor in the increasing prevalence of chronic Bright's disease. That this increase is in the business and professional classes of the community rather than among the workingmen, is an opinion held by men of wide experience.

SPERMATORRHŒA IN GONORRHŒA.

The occurrence of a genuine spermatorrhœa, that is to say, an involuntary discharge of semen without erection or orgasm, is rare. Still, it is known to take place often enough to merit attention; and there can be no doubt that it sometimes occurs without producing any subjective effects sufficient to attract the attention of the patient, so that only accident or rare detective ability on the part of the physician leads to its discovery. Whether or not it is to the advantage of the patient that such unfelt losses of seminal fluid should be known to him or to his physician, cannot as yet be positively asserted. There are those who feel sure that such losses are injurious, others are not so clear on this point. Among the former is Fürbringer, of Berlin, who has for some years made a special study of the conditions in which spermatorrhœa may take place, and who has published a paper on this subject in the *Deutsche medicinische Wochenschrift*, No. 42, 1886.

In studying the causation of spermatorrhœa Fürbringer finds that a previous attack of gonorrhœa is the cause of spermatorrhœa in the majority of cases, as compared with true neurasthenic spermatorrhœa. He has been able to determine this fact for himself by a careful examination, during four and a half years past, of the urine of patients under treatment for chronic gonorrhœa. In making his examinations he has been careful to exclude cases in which the presence of a small quantity of semen could be attributed to natural coitus, or nocturnal emissions, or the practice of onanism in the correct sense of the word, or of masturbation, as well as those cases in which straining at stool, or in any other way has forced out a little semen from the vesicles. Excluding all such cases, Fürbringer has found in one hundred and forty cases of chronic gonorrhœa, no less than twenty-five patients with what he calls "latent spermatorrhœa"—that is, with the presence of a few spermatozoa in the urine, totally unsuspected by themselves. Fürbringer's investigations seem to indicate that in the spermatorrhœa of gonorrhœal origin the discharge is not mixed with the secretion of the prostate, is devoid of the characteristic odor of the seminal fluid, and contains no Böttscher's crystals, while all of these are present in cases of neurasthenic spermatorrhœa.

Fürbringer explains the pathological process and mechanism of this form of spermatorrhœa as follows: By the effect of a chronic inflammation of the deep urethra, the ejaculatory duct becomes insufficient, and thereafter the intraäbdominal pressure caused by straining at stool, or in passing water, or in any other way, causes expression of the contents of the seminal vesicles without the participation of the prostate in this act. Fortunately, according to the observations of Fürbringer, this form of spermatorrhœa is not prejudicial to the power of coitus, or of begetting children.

These observations and opinions of Fürbringer are of decided interest, and it is quite possible that the systematic examination of the urine of patients who have chronic gonorrhœa may throw a light upon the processes of spermatorrhœa which will be of the greatest value in understanding this disorder.

The President on November 18, appointed Lieutenant-Colonel John Moore, Assistant Medical Purveyor, to be Surgeon-General of the Army. Dr. Moore is a native of Indiana, and entered the service as Assistant Surgeon in June, 1863, and after doing duty in Florida and in the Utah Expedition of 1857, he was ordered in 1861 to the Marine Hospital at Cincinnati. In June, 1862, he was promoted to be Surgeon, and was assigned to duty as Medical Director of the Central Grand Division of the Army of the Potomac. In May, 1863, he was transferred to the West, and was appointed Medical Director of the Department and served with the Army of the Tennessee at the close of the siege of Vicksburg. He served through the campaign ending in the capture of Atlanta. He accompanied General Sherman's grand army on the famous march to the sea and through the Carolinas.

Subsequent to the war he served as Medical Director of the Department of Mississippi; was on duty in New York as member of the Army Medical Examining Board. He was Medical Director of the department of Texas and of the Columbia. He was promoted Assistant Medical Purveyor, with the rank of Lieutenant-Colonel, October 8, 1883, which rank he now holds, and is stationed in San Francisco, Cal. He was brevetted Lieutenant-Colonel for gallant and meritorious services in the Atlanta campaign, and Colonel for faithful and meritorious services during the war.

It has been stated that Dr. Moore was not an applicant for the Surgeon-Generalship, but that his excellent record and proved executive ability have probably commended him to the favorable notice of the President. He can hold the office for four years

before he will be eligible for retirement on age. He has been ordered to report at Washington at once.

Dr. Bernays, of St. Louis, last week, successfully performed a gastrotomy upon a tailor aged forty, for the extraction of an ordinary silver-plated dinner knife 9½ inches long, which he had swallowed in imitation of the juggler's feat.

There came, accidentally, into our possession, a short time ago, a memorandum, signed by the late Joseph Pancoast, relating to a remarkable injury received by the late James P. White, the well-known gynecologist of Buffalo. The note was as follows: "A front segment of the atlas vertebra, a little more than an inch on the superior margin, a little less below, with the facette which received the odontoid process. It was in the possession of Professor Granville S. Pattison, to whom it was loaned by Dr. White, to show Professors Joseph Pancoast and McClellan. It is probable that the transverse ligament retained its hold on the two extremities of the remaining fragment of the atlas, thus protecting the spinal marrow from injury. This bone in possession of Professor Pattison I repeatedly saw, and carefully examined; he exhibited it to his class, and it was mislaid or lost. At the request of Professor White, I make this statement of facts. This bone was in our possession in 1838–39–40, or thereabout. I then understood and believed (since confirmed by conversation with Professor White), that it came from his throat, coming out through the mouth as a consequence of ulceration; the result of an accident while riding in a stage-coach on the morning of December 17, 1837. The bone was discharged at the expiration of forty-five days after receipt of the injury."

This statement, signed "Joseph Pancoast," records an interesting and remarkable accident which, so far as we know, has not been made public, and of which there are only one or two instances mentioned in literature.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, November 10, 1886.

I. Minis Hays, M.D., in the Chair.

Dr. Thomas J. Mays read a paper on

SOME OF THE CAUSES OF PULMONARY CONSUMPTION VIEWED FROM A DARWINIAN STANDPOINT.

(See page 589.)

Dr. J. C. Wilson thought that we must hesitate to accept fully the conclusions which the author draws from his studies. He has used, in speaking of this subject, the three terms, pulmonary tuberculosis, pulmonary consumption, and phthisis, interchangeably. He has called attention very carefully to the well accepted views that indoor occupations, bad ventilation, etc., are predisposing causes of this group of affections, but he certainly fails to establish the fact that they are exciting causes.

With reference to the second part of the paper, it is also true that influences which unfavorably affect the offspring, are rather predisposing than exciting causes of the disease. The time has scarcely come when we can satisfactorily discuss this subject. We are now passing through a transition period with reference to the etiology of pulmonary phthisis. He was one among those who regard pulmonary consumption in its ordinary form as a chronic infectious disease. With this view of the subject, the conditions spoken of by the author could only be regarded as predisposing influences.

Dr. J. H. Musser said that there is no doubt that a want of correspondence of the body to its environment leads to such a condition of the system as predisposes to phthisis. He is a profound believer, however, in the specific origin, and in the infectious nature of tuberculosis. He cannot explain the occurrence of cases of phthisis simply by the surroundings of the individual. There are on record instances of locations which, for a long period of time, have been free from tuberculosis; in fact, it never occurred there until, from source of infection, one or two cases have arisen, and from these the disease has spread, so as to become almost epidemic. Under such circumstances, there must have been some distinct specific agent. Again, a person whose family history is good, one who has lived largely an outdoor life, a person of fine physique, surrounded by the most favorable environment, may develop a severe form of tuberculosis. In such a case, the cause is direct contagion. There is another line of thought which is brought out by this paper, and that is with reference, plainly speaking, to breeding. The intermarriage of races, of kinship, of individuals of various diathetic vices, undoubtedly produces individuals that are predisposed to phthisis. When we are as careful as the stock-breeder about the purity of strain, then we will get fine men, and that anatomical condition which predisposes to phthisis will be effaced. He has seen the statement made that pulmonary consumption is rare in the pure negro and in the pure Indian, even when their surroundings have been changed, as compared with the negro or Indian with mixed blood. With regard to tuberculosis in animals in a state of confinement, the question of possible contagion must be considered. Who can tell but that the cages or places in which they are confined are reeking with bacilli. Unless contagion is completely excluded, he thinks that we are not warranted in stating that these animals develop tuberculosis as a result of the change in their environment.

Dr. Harrison Allen said that a Darwinian study must rest upon a morphological basis. Darwin gave great attention to the subject of variations. It is not necessary that variations should be found in a normal state of the body; they may be of the abnormal state as well. It is a matter in dispute as to the significance of variations. Darwin inclined to look upon the majority of them as signs of progressive change. There is no doubt that many of them are retrogressive. Virchow claims that all variations are pathological. The speaker expressed a wish that Dr. Mays had developed his theme

more into the direction indicated. Clinical medicine should rest firmly upon anatomy. In pursuing a research to ascertain the etiology of disease, the student can take no step (if he follow the methods of Darwin) which is not guided by the tenets of morphology. Dr. Formad has admirably defined the morphological basis of tuberculosis. He did not mention the fact that the cause of the left side of the thorax being slighter than the right is due to the circumstance that the left lung is smaller and weaker than is the right. Its lobes are fewer in number, and it lacks a bronchus in advance of the pulmonary artery. Here is found the essential reason why the left lung is so commonly involved. But to secure this fact, the entire mammalian series had to be investigated. This has been done by Aeby. May it not be surmised that gross variations of the arteries, as well as of other structures of the body might be found if they were sought for? Beneke determined the essential condition in rickets to be a preternatural increase of diameter of all the arteries. Virchow obtained an opposite result in chlorosis. It may be said, in an axiomatic way, that a well-defined clinical condition will be always found to rest upon an equally well-defined group of structural peculiarities.

Dr. S. S. Cohen said that the mobile chemistry of the organism favors decay as well as repair, and it is only under favorable circumstances that development can proceed to its greatest perfection. The most trying period in the life history of cell, individual or species, is that in which it is adjusting itself to its changed surroundings. He was not sufficiently expert in mycology to determine the true relation between the bacteria and the disease to which they are supposed to give rise, but he can certainly conceive, as held by Dr. Mays, that in the transition from savagery to civilization, and in the readjustment of organism to environment, such conditions could arise as would lead to the development of phthisis without the presence of any infectious or specific principle whatever. We know that organs atrophy from disuse, and there is no reason why the cellular elements of the lungs should be subjected to any other laws than those which govern living cells in general. He might add to illustrations cited by the lecturer, the fact that the majority of retired pugilists die of pulmonary consumption.

Dr. E. T. Bruen said that one of the interesting points suggested by this paper, is the important bearing which a study of the predisposing influences has upon the proper management of cases of phthisis. We undoubtedly have the anatomical conditions which have been mentioned, and which, of course, cannot be removed, but by appropriate gymnastics the chest may be brought to resemble more closely the ideal chest. Again, the study of the relation of crowd poisoning to conditions interfering with respiration is a very practical point. As long ago as the time of MacCormac, the danger of pre-breathed air was recognized. Purity of the atmosphere is one of the prime conditions of a climate favorable to cases of phthisis. It has been shown that in elevated altitudes, when factories have been established, and the condition of the inhabitants is similar to that of those living in cities, phthisis is rife. Under such circumstances the disease is more frequent than it is in the plains, where crowding does not exist. If the process of nutrition can be brought to such a point that the waste will be more than counter-balanced, much will be accomplished in the way of bringing about the arrest of the disease, and causing a so-called cure. The reason that we cannot do more, is that we have so many anatomical conditions against us.

Dr. T. Mays said that he purposely abstained from giving a definition of the terms to which reference had been made, but had included under the head of pulmonary consumption all the different forms, both tubercular and non-tubercular. Since confessions were in order, he too had one to make, for he experienced a change of view in regard to this question; for when the discovery of the bacillus tuberculosis was announced by Koch, he hoped that it would be a lever by which we could combat the disease. After a thorough study of this subject, both from a theoretical and practical standpoint, he was convinced that the bacillus is not the causative agent, and hence of no therapeutic importance. In regard to the anatomical peculiarities which have been mentioned, he had considered this matter, and concluded that they might possibly be considered as results. There are no investigations of which he is aware that show the shape and size of the respiratory and circulatory organs in persons before they became the subjects of this affection, and until this is done, comparative speculation is useless.

He did not recall having heard of an instance similar to that related by Dr. Musser, where the disease has become epidemic in a locality where it had not before existed. If this were proven, it would be important testimony against the origin of the disease in the manner which he had described. Dr. Musser also stated that the pure Indian is less liable to consumption than the Indian with mixed blood. Yesterday he received from Dr. Given, of the Carlisle Indian School, a letter in regard to this point. He stated that the Indian with mixed blood is less liable to phthisis than the full-blooded Indian, and this fact substantiates the theory of the development of consumption which he had advocated in his paper this evening.

NEW YORK STATE MEDICAL ASSOCIATION.

Third Annual Meeting, held in New York on November 16, 17, and 18, 1886.

The third annual meeting of this Association was opened in Lyric Hall by the President, Dr. E. M. Moore, of Rochester. The scientific interest of the meeting centred around the special discussion which had been arranged on the subjects of gunshot wounds of the intestines and on eclampsia,

Dr. Wm. S. Tremaine, of Erie County, opened

THE DISCUSSION ON GUNSHOT WOUNDS OF THE INTESTINES.

He said that the chief thought that occurred in connection with them is their marked fatality. The universal opinion being that a perforating gunshot wound of the intestines permitting extravasation into the peritoneum is hopelessly fatal, consequently, until quite recently the attention of surgeons was chiefly directed, in their treatment, to some form of euthanasia—and were surgery a non-progressive art, if its recent magnificent triumphs offered no hope for the future, he might well end here and be without excuse to pro-

pound certain questions for consideration. Happily there is hope. The impunity with which in these latter times the abdominal cavity has been opened and extensive surgical manipulations carried on therein gives reasonable ground for hope, that the "do-nothing system" will generally be abandoned and that laparotomy, where there is reason to suspect that the intestines have been wounded, will become a legitimate and successful surgical procedure. And this, without further preamble, opens to our consideration the first question—What are the reasons which lead us to suspect or believe that the intestines have been wounded? Or, in other words, does a group of symptoms exist which would lead to an accurate diagnosis of perforation of the intestines by penetrating gunshot wounds of the abdomen?

In seeking for the answer to this question recourse must be had to the literature of the subject, and of this, by far the most comprehensive is contained in the *Surgical History of the War of the Rebellion*, in which are tabulated 653 wounds of the intestines with a mortality of 80.3 per cent.

But here the meagreness of details of symptoms of reported cases is very marked. In a very few recorded cases such symptoms as "vomiting, small pulse, extreme restlessness" are given. The wound of the intestine was either inferred from the direction of the wound or demonstrated by the autopsy.

Without quoting extracts, it is sufficient for the present purpose to say that faint light is thrown upon the subject in most of the standard text-books, and that so far as books go, but little positive information can be gained as regards accurate diagnosis.

A somewhat extensive experience of the speaker, in wounds of this class, in both military and civil practice, leads to the following conclusions: that the calibre of the ball, the proximity of the weapon, and the position of the wounds of entrance and exit have an important bearing. That as regards general symptoms, the existence of prolonged shock, a lowered temperature, a feeble pulse, great restlessness, marked anxiety of countenance, accompanied by tympanites and great pain, taken in connection with the anatomical location of the wound, afford very strong evidence of a perforating wound of the intestines. That the escape of blood from the anus rarely happens soon after the injury, and is consequently of little value as a diagnostic sign.

Given a case of penetrating wound of the abdomen by a rifle or pistol bullet of from 32 to 45 calibre, fired at ordinary range, accompanied by the above mentioned general symptoms, the probability in at least nine cases out of ten would be death. Does the surgical art offer any plan of treatment by which this fearful rate of mortality may be lowered? In searching amidst the recorded thoughts of master minds in surgery, one finds this question often propounded, and occasionally the answer hinted at with more or less positiveness.

It is a subject for congratulation to us, that the most practical contributions to the answer are largely of American origin. Our own Gross, in 1843, wrote an *Experimental and Critical Inquiry into the Nature and Treatment of Wounds of the Intestines*, in which he makes the following statement: "It will not do for the surgeon to fold his arms and look upon the scene as an idle and disinterested spectator. Far otherwise; he has a duty to perform, and that duty consists in dilating the external wound, if it be not already sufficiently large, in hooking up the injured bowel, and inclosing the solution of continuity with the requisite number of stitches, at the same time that the effused matter is carefully removed with tepid water and a soft sponge. All wiping must, of course, be carefully avoided, as this would add much to the risk of peritonitis."

The question was debated by some of the older surgeons, and in 1836 Baudens advocated the enlargement of the wound and the application of the suture, and reports two cases of enterorrhaphy. Guthrie, after speaking of the frightful mortality, says: "The 'do-nothing system' is commonly followed by death. A well-regulated interference is likely to be more successful." In the Danish war, Lohmeyer advocated "a search for the opening, sew up the wounded knuckle, and to return the latter after removing effused fecal matter." In the Crimean war, similar views were advocated by Legouest. In our own war, these doctrines were carried out by Drs. Bentley, Judson, Gill, and Kinloch.

But in all this the question seems to be restricted to enlarging the wound, and in cases where the diagnosis of perforation was not doubtful, the method of making an incision in the linea alba seems not to have been considered. The propriety of closing by suture a perforation of the intestines is no longer debateable. The question before us is the propriety of incising the abdomen in the middle line: First, for diagnosis; second, to arrest hemorrhage; third, to sew up the wounds in the intestines, should any exist; and, fourth, to remove extravasated blood and fecal matter.

The knowledge gained by laparotomy for other troubles, such as abdominal tumors and the like, undoubtedly gave a great impetus in this direction; consequently, we find a great master in abdominal surgery, the late Dr. Marion Sims, uttering, in 1882, the following words: "I have the deepest conviction that there is not more danger of a man's dying of a gunshot or other wound of the peritoneal cavity properly treated, than there is of a woman's dying of an ovariotomy properly performed. Ovarian tumors were invariably fatal till McDowell demonstrated the manner of cure, which has now reached such perfection that we cure from ninety to ninety-seven per cent. of all cases, and by the application of the same rules that guard us in ovariotomy to the treatment of shot wounds penetrating the abdominal cavity, that there is every certainty of attaining the same success in these that we now boast of in ovariotomy." (*British Medical Journal*, March 4, 1882.) Let us hope that these bold words may prove, in a measure at least, truly prophetic.

I have stated laparotomy first, for purposes of diagnosticating; this is perhaps a debatable ground, for I take it that no surgeon would now question the propriety of exposing the abdominal cavity and suturing the wounds in the intestines, were such were known positively to exist, to do so, would be to abandon the case to inevitable death. Let us suppose a penetrating gunshot wound of the abdomen, where the indications are not clear that the intestines have been perforated (a point, by the way, almost always more or less in doubt).

Is it proper to incise in the middle line and explore? To this I answer, yes: First, because the intestines may be wounded; second, in any event, it is in nine times

out of ten required for the removal of effused blood. We have often in abdominal sections realized the difficulty of arresting hemorrhage from an exceedingly small vessel or oozing point. We are all familiar with the danger from effused blood allowed to remain in the cavity of the abdomen; third, the abdominal section adds but little, if any danger, when done under proper precautions, to which may be added, fourth, the assurance given to the patient that his intestines have not sustained a fatal wound, which cannot but have a marked tonic effect, conducive to recovery.

When the intestines are perforated there can be no longer any doubt as to the propriety of abdominal section, for just so certain as there is perforation, there will be fecal extravasation, and with this extravasation will follow peritonitis and death, providing the patient survive the immediate shock of the injury. Happily, the question of the advisability of the operation has been set at rest by at least three successful cases in America. It is doubtful if there is any well-authenticated case of recovery after a perforated gunshot wound of the small intestines with fecal extravasation, so no amount of negative evidence can weigh against the positive evidence of these successful cases of laparotomy with enterorrhaphy for perforating gunshot wounds of the small intestine. The first case, that of Bull, with perforations; the second, that of Hamilton, with eleven wounds; the third, that of Bull, with perforations.

But little remains for us to consider beyond the "when" and the "how," the "time," when laparotomy should be done, and the manner of doing it. I think there can be no question that the operation, having been determined on, should be done as soon as practicable after the receipt of the injury, for the following reasons: It is believed that the first effect of the injury is to paralyze temporarily the peristaltic action of the bowels, thus for a short time preventing fecal extravasation. It is obvious that moving the patient, if it does not overcome this, will tend to displace mechanically some of the contents of the intestines. Again, if intra-abdominal hemorrhage is going on, it will not be likely to stop spontaneously; moving the patient will not, it is certain, conduce to the arrest of hemorrhage, if it exists; delay increases the chances of peritonitis, thus bringing secondary troubles to add to the primary one, already grave enough.

The disadvantages of delay are well shown in a case reported by Dr. C. T. Parkes to the Chicago Medical Society, October 5, 1884, *Journal of the American Medical Association*, October 31, 1885, where the patient was removed to his home in a farmer's spring wagon a distance of seven miles, and the next day removed to the hospital. It may be also remarked that in this case section was not made in the median line, but the wound was enlarged. At the autopsy, commencing peritonitis and a quantity of extravasated blood were found; one wound had been overlooked. On the other hand, the advantages of immediate operation at the place where the shooting has occurred, and as soon as possible after the injury, are to a certain extent offset by the fact that the surroundings are liable to be unfavorable to abdominal section and that the average general practitioner is not sufficiently skilled in the surgical manipulations considered necessary to attain succes. It has been demonstrated that success in abdominal surgery, other things being equal, increases with favorable surroundings and personal experience in the technique. If laparotomy in gunshot wounds is to become an established operation, it can scarcely be expected that an experienced surgeon can always be obtained, or that the appliances and trained assistance so earnestly insisted on as essential, in other departments of abdominal surgery will always be immediately available, this difficulty can of course be overcome. I would suggest that medical men may train themselves by practice on some of the lower animals. A few experiments will thoroughly convince anyone unfamiliar with this work of the necessity of just such training.

Wherever practicable, I believe the dangers of removal will be counterbalanced by placing the patient where the sanitary surroundings are good and where skilled assistance and necessary appliances can be had. So far, the successful cases have occurred in the hands of men exceptionally well trained for their work—men of superior surgical skill—and assisted by all the apparatus and advantages of well-appointed hospitals. The wounds were inflicted by pistol shots, bullets of medium calibre, viz., 32.

But what of the battlefield? Here it is obvious that by far the greater number of gunshot wounds occur. The modern rifle bullet, weighing 500 grains or more, at ordinary range must inflict a much more serious wound than the comparatively small pistol bullet of 22 and 32 calibre. Although the difficulties of immediate laparotomy under such circumstances may not in the future prove insurmountable, yet it must be confessed that, so far, they have not been met; the proceeding, if not positively detrimental, amid the smoke, dust, haste, confusion, and pressing demands upon the time of the military surgeon on the actual battlefield, will, at any rate, not be found easy of execution. So far as our present experience goes, it would seem the better practice to wait until the wounded man can be carefully removed to a division hospital, in the meantime occluding the external wound or wounds by some convenient form of antiseptic pad. The value and praticability of laparotomy with enterorrhaphy, in military practice, can only be satisfactorily determined by experience in future wars. There are many points to be considered that do not greatly concern the civil surgeon.

In regard to the method of operating, the general plan will follow that of ovariotomy, with the same rigid precautions to prevent sepsis. The method of dealing with the wounded intestine occupied the attention of the older surgeons from the time of the "four masters" who flourished in Paris in the latter part of the thirteenth century, and who used a section of the trachea of an animal. Others used metallic rings, or the ferrule plan as it was called. These were of course applied to incised wounds, or where exsection of portions of injured intestines had been made. The suture of Jobert, 1822, Lembert, 1826, Gely, 1827, each have their advocates, but the present accepted one seems to be that of Lembert or the Czerny-Lembert suture. It may be said of the latter that it is difficult of execution, and as expedition, without undue haste, is of great importance, that form of suture which is most easily applied and at the same time is effective in preventing escape of intestinal contents is best—experience and experiment have shown

that this is the suture of Lembert, the chief point being to bring together the peritoneal coat of the bowel.

It must be remembered that gunshot wounds are lacerated and contused, and before being sutured they must be converted into incised wounds, by carefully paring away the contused portions. Where the injury to the bowel is extensive, or several perforations are close together, this is not always practicable, without resection of the intestine. In this case certain precautions are necessary, the lumen of the intestines above and below the portion to be removed must be occluded with some form of clamp. Treves and Bishop have devised instruments for this purpose. I have found the ordinary spring clothespin, slightly altered, as it may be in a few minutes, to answer this purpose. I also suggest, as a precaution against the escape of blood and the contents of the intestines into the peritoneal cavity, that the portions of the intestines to be operated on should be drawn through an opening in a piece of thin India-rubber used by dentists, and known as rubber-dam.

As the bowel derives its blood supply from the mesentery, it is important, in order to prevent gangrene, that the mesenteric attachment should be as far as possible preserved. When necessary a V-shaped portion of the adjacent mesentery can be removed and this wound closed by the continuous catgut suture.

A question may here arise, "How much of the intestine can be removed with safety?" Baum removed 137 centimetres of the small intestine; the patient recovered from the operation, but six months afterward progressive emaciation resulted in death. This case would seem to indicate that there is a limit to the amount that can be removed without impairing the health.

Sir Spencer Wells suggests that hollow cylinders of cocoanut butter and gelatine be used to afford a support to the intestine and facilitate the passing of the sutures, when enterorrhaphy is necessary. The sutures may be of catgut or fine pure silk, and should be not less than one-tenth of inch apart. I prefer the needle known as Schnetter's, as there is no cutting edge—but ordinary round sewing needles will answer the purpose well. Very small wounds can be closed with the continued suture. All bleeding points must be carefully sought, and ligatured or cauterized. Careful attention must be given to the toilet of the peritoneum; a clean cavity is essential.

After-treatment. Rest, opium, a small quantity of phosphorized milk.

The following case occurring under my own care, while perhaps not strictly germane to the subject, is sufficiently so to warrant relation here. John B., aged eighteen, was admitted about 10 A.M., September 6, 1885, to the Emergency Hospital. At 12.30 A.M. of the same day, or about nine hours prior to admission, he had been stabbed in the abdomen. The wound was three and a half inches in length from the median line toward the right, and three inches below the umbilicus. It penetrated the abdominal cavity, and divided the rectus muscle together with the right deep epigastric artery. He was seen immediately after the injury by a physician, who placed three silver wire sutures through the skin only, and ordered one grain of opium to be given every hour, which was probably faithfully carried out, as on admission he was markedly under the influence of opium, with contracted pupils, slow sighing respiration, cold surface, pulse 132. One of the stitches had given way; there was a bunch of intestine the size of a man's fist protruding through the wound in the muscular wall of the abdomen and distending the skin. After consultation with my colleagues of the staff of the Hospital, I made an incision in the median line, and removed about a pint and a half of clotted blood from the abdominal cavity, which was washed out with warm solution of bichloride of mercury 1 part to 3000 of water. The toilet of peritoneum was practised carefully as in ovariotomy, and with antiseptic precautions. As there was no bleeding, the peritoneum was sutured with fine catgut separately, and silver sutures passed through the skin and abdominal muscles, closing the original wound, and also the wound of operation, a rubber drainage tube left in the dependent angle of the incision, and over all an antiseptic dressing of wood flour prepared with bichloride of mercury and naphthalin (the usual dressing in use in the hospital), and the patient put to bed. He never rallied. At 5.30 P.M. he asked for a drink; at 10.30 P.M. pulse scarcely perceptible: at 11 P.M. he died. Before admission to the hospital he had probably taken (at least so it was stated) eight grains of opium. Had he been admitted to the hospital soon after the injury the result might have been different. It is difficult to say whether he died from the wound or from opium narcosis, or both combined.

The experiments of Dr. C. T. Parkes, of Chicago, as detailed in his valuable paper read before the American Medical Association, at its meeting in Washington, May, 1884 (see The Medical News, May 17, 1884), are, in my opinion, of very great value in teaching many points in regard to the technique. I think they should be carefully studied by every practitioner of medicine.

Dr. Joseph D. Bryant, of New York, in reply to the question, *What are the diagnostic signs of involvement of the intestines in shot wounds of the abdomen?* said: It is presumed that the expression "diagnostic signs" is intended to be accepted as synonymous with "diagnostic symptoms," and also, that diagnostic signs or symptoms are considered to be those signs or symptoms which are characteristic of the abdominal state under consideration. The signs of intestinal involvement will be divided into two classes, viz.: 1. Those referable to the abdomen itself, or the local signs. 2. Those referable to the constitutional effects of the injury as the constitutional or general signs.

The *local signs* will be considered first, and will be arranged somewhat in the order in which they will naturally present themselves to the attention of the professional observer.

The wound of the abdominal wall is the leading local sign of primary interest, and the one most eagerly sought for by the medical attendant. The direction of the wound, the character of the discharge from the wound, and emphysema of its borders or of the neighboring connective tissues, are all of great importance in a diagnostic sense. If the course the missile has taken be such that it must have entered the peritoneal cavity, if undeviated, the presumption is strong that the contents of the cavity have been injured. Yet missiles of large size have passed through the peritoneal cavity, without being followed by symptoms of intestinal in-

volvement, and post-mortem examination of similar cases has failed even to show any evidence of the existence of an intestinal wound. However, instances like these are more illustrative of a freak of physical force, than of its inconstancy, and are, therefore, more curious than convincing. If blood flows from the wound of the abdominal wall and the wound be not in the course of the important bloodvessels of the structure, the hemorrhage is strongly suggestive of intra-abdominal bleeding and consequently of visceral involvement. If the bleeding points that are found in the wall of the abdomen do not account for the entire loss of blood, the evidence of intra-abdominal hemorrhage, dependent on intra-abdominal involvement, is conclusive. The passage of bloody stools, or bloody urine, at a near period to that of the receipt of the injury, will serve to confirm the belief that may exist of intra-abdominal visceral involvement. The escape of intestinal contents from the abdominal wound is positive proof of involvement of the intestine itself. This evidence is seen, however, very infrequently as an immediate sign, since the extravasated fluids are quite easily retained in the peritoneal cavity, owing to the change of the relations of the wound of the abdominal wall to those of the intestinal wound, caused by the intestinal vermicular motions, the natural movements of the patient, as well as those movements incident to the occurrence of the injury. The ragged borders of the abdominal wall interfere also as a notable obstacle to the escape of these fluids into the external world. Still, if the missile have caused large and gaping wounds of the soft parts, the intestinal contents will escape often at the time of the receipt of the injury especially if the intestine be plethoric with its characteristic matters, in spite of these circumstances. This sign appears somewhat late in the history of a case as a rule, and after the formation of inflammatory adhesions that guide the fluids along the adventitious channel formed by them, often from a considerable depth within the abdominal cavity. With this condition of things the intestinal contents escape readily through the abdominal wound, and alimentary substances may escape even quite as soon as swallowed.

Emphysema. This sign is not associated very frequently with penetrating wounds of the abdomen, but, when present, is almost invariably due to the escape of intestinal gases into the connective tissue situated between the intestine and the abdominal wall; hence it is associated especially with injuries of those portions of the intestinal tract that are not surrounded entirely by peritoneum. Emphysema may be limited to the immediate neighborhood of the external wound or become general by spreading gradually from the seat of an intestinal wound into the surrounding connective tissue of the abdominal wall. It may be due also in part or entirely to a complicating wound of the pulmonary tissues. Early emphysema of the abdominal wall has been considered by some writers as a certain sign of intestinal perforation, when associated with a suspected penetrating abdominal wound. This statement, while commonly true, must be accepted as yet with a certain degree of caution, since it has happened that a circumscribed subcutaneous emphysema has taken place around non-penetrating stab wounds of the abdominal wall, in two distinct cases within the observation of the writer. This emphysema was caused apparently by the suction influence exerted on the external air by the retraction of the divided fibres of the abdominal muscle, its escape being prevented by the valvular arrangement of the structure at the opening through the integument and subcutaneous tissues. Air in the peritoneal cavity may give rise to emphysema if it be forced between the structures bordering upon an abdominal wound into the connective tissues beyond this point. If decomposition occur in the course of a penetrating wound of the abdomen, emphysema of the contiguous connective tissue may ensue, even though the intestines themselves have not been injured. In such a case as this, the emphysema takes place at a later period than in the former case and is attended by the symptoms peculiar to decomposition and usually without the acute signs of intestinal penetration. Pain, tenderness, tympanites, bloody stools, and retention of urine are signs of common occurrence with intestinal involvement. The pain is located primarily about the seat of the wound, it is dull or lancinating at first and is increased by all muscular movements of the patient; later it becomes more intense and of a burning character, accompanied by exquisite abdominal tenderness, retraction of the thighs, and obstinate constipation. Not infrequently griping pains are present attended with frequent desire to stool. Retention of urine; frequent calls to micturition which may or may not be successful, are of common occurrence in both the early and late history of intestinal involvement.

Tympanites. Tympanites may depend either on gaseous distention of the intestine, or the pressure of intestinal gases in the peritoneal cavity; on extensive emphysema of the abdominal wall or on a combination of these factors. If tympanites develop soon after pain and tenderness appear, and increase in proportion with them, being at the outset best marked at and around the site of the wound, it is certain to be due chiefly to intestinal distention. If tympanites follow quickly, antedating the symptoms of inflammation, or be out of proportion to them, or if much distention of the abdomen with a drum-like sound attended by little or limited pain and tenderness be present, the tympanites depends without doubt on the presence of air in the peritoneal cavity. The substitution of tympanitic resonance for normal hepatic dulness may be considered a strongly diagnostic sign of even a small amount of air in the peritoneal cavity: but it may be caused by the adhesions of the intestine to the anterior abdominal wall in this situation, by a distended colon pressing firmly against the under surface of the liver, and by distention of the colon accompanied by a diminished area of hepatic dulness due to a contracted liver. In the former of the last two conditions, however, the area of hepatic dulness will be increased posteriorly by the pressing upward of the liver, providing the lung of that side be not emphysematous. In the later of these two conditions the posterior area of hepatic dulness will be lessened in proportion to the diminution of the size of the liver. Prof. E. G. Janeway has noted that the transverse colon may pass between the liver and the abdominal wall, causing tympanitic resonance in this situation. This condition has since been observed post-mortem by Dr. H. M. Biggs. If the serous surface of the liver be adherent to the anterior abdominal wall, hepatic dulness will be present even though air be in the peri-

toneal cavity. The foregoing marked conditions are so infrequent, however, that tympanitic resonance in the hepatic region, existing in a case of suspected intestinal involvement, may be considered almost pathognomonic of the existence of that condition. *Percussion of the abdominal wall* may elicit an abnormal line of dulness due to fluids in the peritoneal cavity. This line will be parallel with the long axis of the body and be influenced by its position. However, the amount of blood or of other fluid necessary to cause this sign must be considerable, especially if the pelvic pouches of the peritoneum have first become filled with it.

Palpation may detect a doughy feeling of the wall of the abdomen, which is imparted to it by the large amount of extravasated blood in the peritoneal cavity.

The constitutional or *general symptoms* that have a recognized bearing on the diagnosis of intestinal involvement are shock, nausea, vomiting, and hiccough. Shock is the first of the series of constitutional symptoms. It may be mild or severe, and while its gravity may depend either on the degree or on the idiosyncrasy of the patient, yet severe shock at the outset may be considered as almost diagnostic of a profuse hemorrhage or an extensive visceral involvement. Intense thirst, constant wakefulness, excessive restlessness, and great anxiety are manifestations of intestinal involvement, all of which are associated more or less intimately with shock, and the first of these with the initial processes of a consequent peritoneal inflammation.

Nausea commonly appears immediately after the intestinal involvement has taken place, vomiting also occurs at intervals and usually both nausea and vomiting are present subsequently during the entire course of a fatal case. Hiccough usually follows both nausea and vomiting, but is often controlled by the anodyne treatment addressed to the patient. There are many other signs of a primary and secondary character that are to be found in connection with the earlier or later history of a penetrating abdominal wound complicated with intestinal involvement. They are too well known already to require a recapitulation at this time, and moreover they are of a secondary importance, since they are of little practical use for the diagnosis of intestinal involvement, when considered independently of the sequelæ that so constantly follow it. It is now to be seen that there are very few positive early indications of intestinal involvement associated with an abdominal penetrating wound. The escape of the intestinal contents from the abdominal wound is a positive one; the presence of extravasated air in the peritoneal cavity, as indicated by modification of the area of hepatic dulness, is a positive sign of the involvement of the intestines or stomach, provided the area of hepatic dulness has not been modified already by abnormalities of position or morbid processes. It should not be forgotten, however, that intestinal involvement may exist without the presence of any or at least of a sufficient amount of extravasated intestinal gases in the peritoneal cavity, to modify appreciably the area of hepatic dulness.

The escape of blood from the peritoneal cavity through the abdominal wound is positive proof of intra-abdominal involvement, but which of the structures is involved must be largely a matter of speculation. Hemorrhage from the bowel or from the bladder, other things being equal, should be accepted as conclusive proof of intra-abdominal involvement.

Percussion, as an aid in the diagnosis of ascitic fluid in the abdominal cavity, is of the utmost importance, especially if the line of dulness may be varied by changing the position of the patient. But when this sign is sought for in connection with the diagnosis of extravasated blood in the peritoneal cavity, which blood may be mixed, possibly with intestinal matters, or urine, its importance as a diagnostic sign is greatly overshadowed by the dangers arising from the dissemination of the irritating agents through the peritoneal cavity. Surely, the surgeon who would change the osition of the patient, and await the slow gravitation of the fluid contents of the peritoneal cavity to its most dependent part, that he might define a line of dulness by percussion, will expose the peritoneum to the danger of irreparable injury. This sign can be of but little practical use when properly sought, because when it is found without a change of the patient's position, the loss of blood will have been so great that other signs will have betrayed its occurrence already.

Palpation, when cautiously employed, can develop no facts in connection with extravasation that will possess a decisive influence in determining the question of intestinal involvement in an ordinarily obscure case.

Indeed, it would be far better for patients and for surgery, if the diagnostic importance of both percussion and palpation, in this instance, be not recognized at all in these injuries, than that the evidence to be gained by them be incautiously sought for by the surgeon. The severe constitutional symptoms already mentioned can be looked upon with that foreboding which is almost akin to certainty. The minor secondary symptoms also are not to be ignored; but are to be employed as connecting fibres in the diagnostic fabric.

DR. WILLIAM T. BULL considered *under what circumstances, and how soon after the injury, should laparotomy be resorted to in shot wounds of intestine; and when is the operation indicated?*

It is admitted by surgeons generally, that shot wounds of the intestine are almost uniformly fatal injuries. Even balls of the smallest calibre used in civil life, a "22" for instance, which have made only one or two wounds of the intestine, have brought about fatal peritonitis, and the instances of recovery have been very exceptional, and at he expense of dangerous peritonitis. It has furthermore been demonstrated that operative interference can deal with these injuries successfully. Three recoveries after laparotomy have been reported; one by Dr. Hamilton (*New York Medical Journal*, Nov. 14, 1885), and two by myself (THE MEDICAL NEWS, Nov. 6, 1886). And the unsuccessful operations have revealed the existence of injuries which would certainly have proved fatal without surgical assistance. It may, therefore, be considered settled that laparotomy is the best treatment for shot wounds of the intestine, and that it is generally indicated.

In applying this general indication to the individual case, we are beset with difficulties. It is often impossible to ascertain by the usual exploration with probes, whether a wound of the parietes be penetrating or not; and even when the intestine has been perforated, positive symptoms of that injury are often wanting at the

outset. Again, if laparotomy be delayed till the symptoms have made the diagnosis, it will be undertaken with very much diminished chances of success.

It is not my province to discuss the value of symptoms which indicate wound of the intestine; that has been undertaken by others. In cases which present these symptoms the indication is clear and imperative, and no surgeon should hesitate to give his patient the chance of operation if the general condition be such as to permit it.

But what I wish to emphasize, as bearing on the application of laparotomy, is the fact that many cases present few or none of these symptoms; that the sudden onset of peritonitis is the first indication of intestinal wound; and, again, that a bullet which has entered the abdominal cavity in the region occupied by intestine is much more likely to have injured the gut than to have missed it. Experiment has shown the possibility of avoiding the gut in the cadaver, but clinical evidence is lacking to support it. If we can be sure that a bullet has entered the peritoneal cavity, we may safely assume that it has injured the intestine or other viscera, and any doubt will be dispelled by the presence of feces, fecal swelling, gas, much blood, or serous exudation. There is but one way to ascertain these conditions at the outset, and that is by exploration of the bullet wound. And this should be done at the earliest possible moment, when the immediate shock of injury or transportation has subsided, and proper arrangements for operation have been made. I need not dwell long on the necessity of an early operation. Delay gives an opportunity for renewed bleeding and fecal extravasation, and invites septicæmia from the absorption of peritoneal exudations. If peritonitis be actually developed with tympanites, firm adhesions, and purulent foci, the difficulties of operation are almost insuperable, and the chances of success extremely doubtful. This plan of procedure which I have advocated and already put into practice, will, in my opinion, prove safer in the aggregate of cases than the policy of waiting for symptoms, inasmuch as exploration, conducted with antiseptic precautions, must be regarded as of trifling risk to the patient. It is not without advantage in a non-penetrating wound. It will enable the surgeon to remove the bullet, explore the wound in the most favorable condition for rapid healing, and reassure the patient.

A penetrating wound enlarged to two or three inches in length, will permit the inspection of the viscera in the neighborhood, and the examination of other parts with a sponge or the finger. In the further exploration of the viscera, section in the middle line is preferable. As a general rule, I believe it will be safer in the aggregate of cases to perform laparotomy when the wound is found to be penetrating, even if the cavity be tolerably clean. But it is worthy of note, that in none of the cases hitherto reported has there been any lack of blood or bloody serum in the cavity. In two instances when the abdomen was opened, only two hours after the injury, there was an abundant exudation of serum of blood clots.

Let me present, in support of this treatment, the result in eight cases observed at the Chambers Street Hospital since 1877. These are all the cases in which the nature and extent of the wounds were determined by autopsy or operation and in which, with but one exception, the intestine alone was involved.

1. The whole number of wounds in 10 years is 20. 5 were of the parietes only; 7 were of the intestines alone; 1 was of the intestine and bladder; 1 was of the stomach, and 1 was of the stomach and liver; 2 were of the liver alone; 3 were not examined after death. They were presumably 1 of the intestines alone, 1 of the intestines and kidney, 1 of the liver and intestines. The five wounds of the parietes recovered. All the others died except the two intestinal cases, which were subjected to operation.

The number is small but the contrast is striking. Five cases of shot wound treated on the expectant plan have all proved fatal. Three cases in which laparotomy was performed after exploration of the bullet wound have yielded two recoveries and one death. The two successful cases have already been reported. *Case 1.* (Med. News of Feb. 14, 1885): William McE. was operated on November 2, 1884, seventeen hours after the bullet of 32-calibre had entered the abdomen an inch and a half to the left and an equal distance below the umbilicus. Seven wounds of the intestines (from one of which the bullet was removed) were sutured and the cavity cleared of clots and bloody serum. The intestines were not adherent, though "coated here and there with clots and flakes of fibrin," so that in order to inspect their surface it was necessary to rub the peritoneum lightly with a sponge. The operation lasted two hours. The wound healed by granulation. I have seen the man within a few weeks; he remains in good health, working as a truckster.

Case 2. (Med. News of Nov. 6, 1886): Daniel M., aged twenty-five, was operated on August 12, 1886, only two hours after he had been shot with a 38-calibre pistol-ball two inches below the umbilicus and two inches to the left of the median line. There were no symptoms of shock and no evidence of intra-abdominal injury. The incision into the bullet wound showed that it entered the cavity and bloody serum escaped freely. Three wounds of the intestine were sutured, and two wounds of the sigmoid mesocolon left gaping after being dusted with iodoform. From one of these wounds there was free hemorrhage which was controlled by ligature; and a large blood extravasation in its vicinity made it probable that the bullet was looped there. It was not interfered with. This moved normally on the fifth day, but complete recovery was delayed till eight weeks, owing to suppuration in the line of abdominal incision and the protrusion of a knuckle of intestine which was reduced by gradual pressure while its wound cicatrized over it.

Case 3, which proved fatal, I will mention more in detail, since it is reported for the first time.

On November 6, 1886, a muscular mechanic, of intemperate habits, twenty-four years of age, was shot in the back ten minutes before admission to hospital. The bullet, of 44-calibre, entered one and a half inches to the right of the spine on a level with the last rib and could be felt anteriorly beneath the skin one and a half inches to the right and two inches above the umbilicus. Pulse 62; resp. 22; temp. 98°. Severe abdominal pain. Surface pale and extremities cool. An hour later he vomited contents of stomach. Five hours later he was still pale but warm; had severe pain. Pulse 92; resp. 35; temp. 98°. Hepatic dulness diminished but not absent, abdomen not swollen, tender about bullet; left

lumbar region resonant, right dull—dullness differs on turning to the left side (bloody fluid in cavity). After consultation with Drs. Peters, Weir, and T. B. Hunter, the bullet was removed by a three inch incision and the finger passed into the cavity. Considerable bloody serum and gas followed its withdrawal, the latter thought by some to be of fecal odor. No feces. The abdomen was then opened in the middle line from three inches below the sternum to two inches above the pubes —eleven inches. One or two pints of bloody serum and clots were opened out. Four perforations, two of the jejunum, two of the transverse colon, were sutured with Lembert's suture; the stomach, liver, and spleen inspected, and the intestines and cavity thoroughly washed with carbolic acid (1 to 100). The posterior wound was covered with iodoform compress. In holding the small intestine out of the wound a vein in the gastro-ophemic omentum was torn, but vainly secured with ligature. The point of entrance of the bullet was not detected. The tissues of the ascending mesocolon were stained black with extravasated fluid. The operation lasted one and three-quarter hours. At its close the pulse was 125 (small), resp. 42. Reaction was imperfect and death ensued at the end of eight hours. The autopsy made by the deputy coroner did not disclose the point of entrance into the abdominal cavity. In the retro-peritoneal tissues about the kidney and ascending colon was extensive extravasation of blood. Kidney uninjured, stone, bloody serum in the cavity. The wounds were tightly closed and no others were found.

Comment on these cases is unnecessary, but it is worth noting that none of them presented positive symptoms of injury of the intestine, and that all were submitted to operation on the strength of the preliminary exploration of the bullet wound. The unsuccessful cases undoubtedly died from the shock of operation, but the lesions found demonstrated clearly the necessity of interference.

The following are the fatal cases in which no operation was done:

Case 4. An Italian woman, twenty-three years of age, was shot with a "22" pistol, September 23, 1884, the bullet entering the abdominal wall in the middle line half way between umbilicus and pubes. No shock and no abdominal pain. A local peritonitis developed gradually; an abscess burst through the wound, which discharged feces on the twenty-second day. On the twenty-third day a hemorrhage of a few ounces from the wound brought about her death in collapse. The autopsy showed general peritonitis and an abscess encapsulated by adherent intestines and communicating with the wound. In the wall of this abscess was the epigastric artery (ulcerated), and connecting with the cavity were two ulcerated openings in the sigmoid flexure —the original bullet wounds. The bullet was embedded in the muscles near the crest of the ilium. There were no other intestinal wounds.

This woman died three weeks before McElroy (the first patient operated) was brought to the hospital. I had looked on this case as one likely to recover. The autopsy showed so little damage to the gut that I was led to look carefully into the histories of the other cases. The result of this investigation, together with a knowledge of the success obtained in pathological cases, led me to decide to give the next case that presented, the chance of operation. But another fatal case presents intestinal lesions quite as trifling as the last.

Case 5. On November 2, 1886, a French cook was brought to the hospital four hours after being shot with a 32 pistol. There was a superficial wound of the chest, and another entering the body in the eleventh intercostal space three inches to the left of the spine, and passing forward. Anteriorly the bullet could be felt beneath the skin in the left mammary line close to the cartilages. Abdominal pain; trifling shock. Abdomen normal except for tenderness about bullet. Pulse 100; resp. 36; temp. 99⅗°. Two hours later the bullet was removed, the wound sutured over a rubber drain. Twenty-four hours later there were vomiting, tympanites, and general prostration. In the next forty-eight hours the symptoms were aggravated. At the end of the third day the wound was enlarged so as to admit the finger, on withdrawing which fluid feces escaped. The general condition did not admit of further interference than free incision of the parietes in the track of the wound; but this was sufficient to let out a quantity of fecal matter, and to reveal an opening in the posterior wall of the descending colon. Death ensued on the fourth day. The autopsy disclosed a general purulent peritonitis, feces being found in the exudation, and the intestines matted together. The omentum was firmly adherent to the transverse and descending colon. The bullet had passed through the wall of the descending colon both posteriorly, where it was uncovered by peritoneum, and again anteriorly close to the point of reflexion of the peritoneum to the lateral abdominal wall. The two wounds were about an inch apart. There were no other intestinal wounds, and the other organs were healthy.

In this instance enlargement of the wound from which the bullet was extracted would have been sufficient to examine the colon, and to detect and suture the wounds.

The three following cases I cannot present with as full details as is desirable. But they will serve to strengthen your convictions, as they gave rise to mine, of the necessity for operation:

Case 6. A machinist, forty-nine years of age, shot himself accidentally June 24, 1878. On admission to the hospital, a few minutes later, he was in a state of profound shock. The wound was situated two inches to the left and one inch below the umbilicus. Reaction was slow and imperfect. Two hours later he vomited contents of stomach and bile. The vomiting was repeated, collapse occurred, and he died at the end of twenty-four hours. The autopsy revealed several ounces of coffee-colored fluid in the peritoneal cavity (feces not referred to). The bullet had passed through the small intestine and psoas muscle, and lodged in the abdominal wall near the crest of the ilium.

Case 7. A laborer, aged twenty-five, was shot in the abdomen. On reaching hospital he was drunk, and in good condition, but bloody urine was drawn. Within twelve hours vomiting occurred, peritonitis developed, and he died in three days. Autopsy showed "several perforations of the small intestine, and the bullet lodged in the ascending colon."

Case 8. May 4, 1879, a mechanic, thirty-seven years old, shot himself with a pistol. The bullet entered two inches to the right and one and three-fourth inches below the umbilicus, and was felt under the skin on inner side

of left thigh, and removed. Pulse 108; resp. 25; temp. 99½°. Bloody urine, moderate abdominal pain. In a few hours vomiting and collapse. Retention of urine persisted. It was found in autopsy that the ball had made wounds of the small intestine, and passed through the bladder to the thigh.

In the light of our present knowledge, the record of these cases is a melancholy one. None of them, with possibly the exception of the last, presented lesions so serious as those of the cases which have been operated on. All of the patients were victims to that policy of non-interference which was born of the dread of wounds of the peritoneum. The achievements of antiseptic surgery have dispelled that fear; and we are in duty bound to give to abdominal injuries the chances offered by an early and thorough exploration. And, as our experience extends, there is every reason to believe that our successes will multiply.

In considering the contra-indications to laparotomy, we must remember that many wounds involve the solid viscera as well as the intestine. This is true of those which enter the abdomen in the epigastric, or within the hypochondriac region, and pass through the stomach spleen, and liver, or, entering from behind, around the kidney. These are very complicated injuries, and for the case of liver or spleen, and kidney to a less degree, are accompanied generally by profuse hemorrhage and consequent profound shock and depression. I am doubtful of our ability to cope with such serious lesions in addition to those of the intestine. Dr. Dennis has reported one case of a bullet entering the epigastrium opening through the liver, in which laparotomy was of no avail, and two similar cases in my service have been subjected to operation by Dr. Wiekin and myself. One patient died during the operation (reported in The Medical News, of November 6, 1886), the other survived but an hour. The stomach might offer insufferable difficulties if the posterior wall were perforated, but the spleen and kidney could be dealt with more satisfactorily by extirpation. But those manifestations make success extremely doubtful; and operation would certainly not be justifiable in a patient suffering from a serious degree of shock. Uncomplicated intestinal wounds are not attended with profound shock, and the subsequent depression is apt to be followed by reaction.

When the solid viscera are involved, the shock will be profound, its phenomena prolonged, and reaction incomplete. Hence I regard a prolonged condition of shock as a decided contra-indication to laparotomy. The phenomena of this condition must be interpreted by the individual surgeon according to his own experience and judgment. A partial or complete reaction may change his view as to the gravity of the case, and justify a disregard of this contra-indication. But it must be remembered that the exposure and handling of the viscera are of themselves procedures compromising to the life of the patient and should not be undertaken unless there are reasonable chances of success.

A well-developed peritonitis might be regarded as a contra-indication in view of the diminished chances of successful operation from the reasons mentioned at the beginning of this paper. I do not think we are in a position to decide upon this yet; but in view of the fact that it is no longer considered an obstacle to operations for the removal of tumors, or for intestinal obstruction, and that it has been cured by laparotomy with irrigation and drainage, we are justified in disregarding it, unless the patient be too much depressed to warrant any operation.

In conclusion, let me make one exception to the rule of treatment I have advocated, viz., to explore the bullet wounds first. It is in cases where the wound is situated in the posterior wall of the abdomen, or in the lateral wall covered by the lower ribs, and there is no evidence of any wound anteriorly. Here enlargement of the wound would not permit a satisfactory inspection of the cavity, and there are many chances of the missile being looped in the thick layer of muscles, or deflected by the ribs, and I believe it would be manifestly proper to wait for symptoms before resorting to laparotomy. But with this exception, and the contra-indication I have mentioned, I am convinced that the surest, safest, and quickest way of dealing with shot wounds of the intestine, is first to assure one's self by exploration of the wound of entrance, that the cavity has been entered, or the gut injured, and then to repair that injury by laparotomy.

Dr. Theodore R. Varick, of Jersey City, said that:

Assuming that a diagnosis has been made that perforation of the intestines has occurred, we are brought face to face with one of the most formidable conditions a surgeon is called upon to treat.

The indications for treatment are based upon the recognition of the various factors leading to death; which are, primarily, shock and hemorrhage; and, secondarily, peritonitis, resulting from the wounds and the extravasation of intestinal contents into the peritoneal cavity, which, if life be sufficiently prolonged, terminates in sepsis. The gravity of wounds of the kind is modified by location and size, as to whether affecting the large or small intestine, or inflicted from behind, opening the gut where it is uncovered by peritoneum, and whether it is a simple perforation, multiple, or complicated by the opening of an artery or vein.

The symptoms indicating the predominance of either one of the factors alluded to, might be construed as a guide as to the immediate or later resort to operative procedure. In some instances the eversion of the mucous membrane, it is alleged, in cases of small wounds, may possibly for a time prevent extravasation, but later on the occurrence of sloughing at the periphery of the wound allows extravasation to occur and peritonitis to ensue. Sloughing may occur at an early period, as in a fatal case reported by Dr. Charles A. Jersey, in which death took place on the fourth day. The autopsy showed "the edges of the two perforating wounds in the mesentery had separated, and their surfaces were covered by a blackened, softened slough, discharging pus into the peritoneal cavity." This eversion of the mucous membrane observed in wounds of the intestines acting as a temporary barrier, seems to me to exist more in theory than clinical observation would warrant, and should be disregarded altogether in the question of treatment, especially when we consider the difference between a clean-cut or punctured wound made with a sharp instrument, and one inflicted by a bullet. In the one there is no loss of substance, but a simple solution of continuity; in the other there is not only a solution of continuity, a frequent actual loss of substance, but the tissues are torn, frayed out, and the vitality of the sur-

rounding tissue destroyed, the part being apparently punched out; while the contraction of the muscular fibres tends more and more to keep open and enlarge the wound, offering increasing facilities for the extravasation of the intestinal contents.

No matter how small the perforation may be, there is almost always a corresponding amount of extravasation. It is barely possible that peritonitis, provided the opening be small, and the extravasation be limited and gradual, may, as in non-traumatic cases, cause a sufficient amount of adhesions to circumscribe the effused matter, and terminate in abscess. This is so very improbable as to merit little consideration.

The exceedingly small percentage of recoveries after gunshot wounds of the intestines, raises the question, not so much as to the necessity of an operation, as it does regarding the time when laparotomy should be performed.

The contraindications are only such as would foreshadow the rapid approach of dissolution, when the operation would be absolutely useless. Shock, to a greater or less extent, always accompanies shot-wounds of the intestines, and it is a factor which is often a source of embarrassment, governed oftentimes as much by the nervous susceptibility of the patient, as it is by the gravity of the wound. Viewed in the abstract, it is exceedingly fallacious, but taken in connection with gradually increasing evidence of exhaustion, such as rigidity and feebleness of the pulse, jactitation, sighing, respiration, and sinking of the temperature, indicating intra-abdominal hemorrhage, and in cases in which, in addition, is found dulness at the more depending portions of the abdomen, with tympanitic distention of the anterior portion, immediate laparotomy is clearly indicated, that the bleeding vessels may be tied, and the extravasations removed.

In this connection I desire to call attention to the significance of tympanitic resonance over the liver, and also to the persistence of hepatic dulness, first brought to the notice of the profession by one whose memory is dear to every one of us, the lamented and illustrious Flint: "Tympanitic resonance over the liver, however, cannot be considered a proof of the presence of gas in the peritoneal cavity, inasmuch as the resonance is found not infrequently when the transverse colon is much distended with gas, or when this portion of the intestine is pushed upward above the lower margin of the liver; but persistent hepatic flatness is proof almost absolute against perforation."

The first condition, taken in connection with other corroborative symptoms, would, as before remarked, call for prompt action, while the latter, although not an absolutely certain contra-indication, might justify delay. It should be borne in mind that the condition of fulness or emptiness of the stomach and bowels, or, in other words, whether the injury is received shortly after a meal or fasting, are important factors governing the amount of extravasation from the wound.

The character of the vulnerating body enters into the estimation of the gravity of the wound; thus a charge of shot produces a more ragged and extensive injury than one inflicted by a single bullet; and the frequent lodgement of pieces of clothing and other foreign substances withinthe abdomen, adds to dangers of irritation and sepis, and demand immediate removal. The longer these substances are allowed to remain, the less chance there is of ultimate recovery.

To the genius of Ephraim McDowell are we indebted for the demonstration of the practicability of intra-abdominal operations, and this demonstration has given rise to the brilliant results obtained by a host of surgeons eminent in the domain of gynecology, until laparotomy has become firmly established as a justifiable, and, in many instances, an operation imperatively demanded. If it is demanded in the various phases of ovarian and uterine disease in which a fatal result may seem far distant in the future, how much the more necessary is it in cases which, if active measures are not at once resorted to, a fatal result ensues, not in days or weeks, but in hours, or, perchance, in minutes?

If the operation is considered a desperate one, we should bear in mind that we have a desperate case to treat. The day of expectancy is past, and the time for bold and decisive action has arrived. Would not a surgeon be worse than criminal, to allow a patient whose life-blood is oozing away, whose peritoneal cavity is subjected to the contact of feculent matter, or, perchance, foreign substances from without, lighting up peritonitis and sepsis, leading to inevitable death, to die, when, in the light of surgical science of the present day, means are offered to stem the outflow of life, to remove by thorough cleansing of the peritoneal cavity all foreign substances, and, by the various methods of continuous suture, close the door to further extravasation, and allow a conservative plastic exudation to complete what art commenced.

Who would not at once remove a foreign body from an extremity the effect of which would be simply the production of a limited amount of inflammation and suppuration? And how much more is it the duty of the surgeon to remove from the abdominal cavity more deadly material, whose presence, moment by moment, tends more and more to shorten life? If time enough has already elapsed to note a gradual descent of temperature, it indicates a continuous hemorrhage.

Operate at once and arrest the hemorrhage. If the temperature has ceased to fall and has begun to rise above the normal, inflammatory consequences are already initiated, but, possibly, it may not yet be too late to operate. At all events, give your patient the benefit of a chance, no matter how small, as against an almost absolute certainty of death.

DR. CHARLES B. NANCREDE, of Philadelphia, remarked that out of a number of cases to which he had referred, and to those cases with which he had been brought in contact, he had found that about eight per cent. recovered, which he thought taught us the necessity for laparotomy.

What is the danger of laparotomy and what are the advantages derived from it? First, the tendency is toward death. One surgeon reports that he has met with four cases in his own practice, where the gut was unwounded, by the showing of the post-mortem. The passage of the ball, whether obliquely or straight, and the shape of the ball and its calibre have all to be considered in these cases. In one case the point of entrance was so tightly closed that it would hardly open on manipulation, and yet frequently the abdominal wound allows fluid to pass out to the external surface.'

What are the causes of death? In nearly every case,

septic peritonitis caused by feces or pieces of cloth. About ninety per cent. die within forty-eight hours where there is extravasation of feces; hemorrhage in itself is rarely the cause of death where an operation can be contemplated. Septic intoxication is also a cause of death. Dr. Nancrede here called attention to the question whether this was not more frequently the cause of death than sepsis.

When recovery ensues, what conservative process takes place? This occurs in eight per cent., but this is not exact, for probably adhesions form more often. Again, a small primary fecal extravasation may occur, giving rise to an abscess, which, if it bursts internally, results in death. In gunshot wounds of the intestines, shock is all we need dread; we can almost certainly prevent septic infection; should peritonitis set in we can secure drainage. We can restore continuity of the gut, we avoid the risk of fecal fistula, and we secure the arrest of hemorrhage.

Always operate in shot wounds of the intestines, except when certain contraindications exist; but still there is always room for mistakes, and no wound of the bowel may exist. In a penetrating wound of the abdomen and probable wound of the intestines, laparotomy is the proper procedure; tympanites in such cases demands an operation; exit of blood, feces, etc., from the wound demands operative interference, and should be resorted to as soon as the patient is in a condition to operate upon.

Dr. Nancrede considered that the surroundings of the patient should not contraindicate an operation, but still every surgeon should not operate, and during the operation only one pair of hands should enter the abdominal cavity. Inexperience of the surgeon is a contraindication, and most cases will do better if left alone than if operated upon by a poor surgeon. He could not advocate laparotomy in those cases in which peritonitis exists; injury of other organs may also contraindicate it; one must remember that the opening of a tense abdominal wall, and removing portions of intestine, is a different matter from that of removing an abdominal tumor where no peritonitis or previous shock exists.

Dr. John B. Hamilton, of Washington, discussed the following question, *What are the essential features of the technique of laparotomy, including the management of the wounded intestine?*

He remarked that his experience in relation to this subject had not been large, and he was unable to mention more than one successful case occurring in his own practice, which had been previously reported in the medical journals. He did not think there were any positive diagnostic signs of intestinal injury in gunshot wounds, in the very early stages. In support of this he quoted a case of a woman twenty-two years of age who was admitted to the hospital just after she had been shot in the abdomen. The surgeon there at the time could find no shock or pain, but simply a small abdominal wound where the ball entered; he allowed her to remain over until the next day. Dr. Hamilton then coming on duty, took charge of the case. Tympanites was then developing and there were signs of intestinal involvement, but he was unwilling to perform laparotomy so long after the injury, and under the condition the patient was in. She had no pain, but tympanites was increasing. Death occurred on the third day after the injury. At the autopsy four perforations of the intestine were found. The abdominal wound was very small a little below and to the left of the umbilicus, at the edge of the rectus muscle. He thought the case sufficient to prove that the intestines may receive serious injury and yet give no signs of it, as up to the time of her death there had been no shock or pain at any time.

What shall be the method of treatment?

In Dr. Hamilton's opinion the first question is to consider whether the intestines are injured. At the rate of percentage death nearly always followed, especially when the wound was inflicted at short range. We first wish to know whether the abdominal cavity has been entered, and for this purpose he advised the use of the probe, although he knew it was against some of the most ancient customs of surgery; but no one has yet pointed out the evil of using the probe, and the objection to it rests only upon tradition. In advocating the use of the probe as a means of diagnosis, he wished to be understood that its use should be restricted to cases of small pistol-shot wounds, using a soft flexible probe which could do no harm. The only danger in the use of the probe, he thinks, was in passing too small a one.

The indications for laparotomy are clear and distinct in these conditions; if there is shock an exploratory laparotomy would be indicated.

Under what circumstances, and how soon after injury should laparotomy be resorted to, and when is it contraindicated?

He thinks it should be resorted to whenever the surgeon believes the intestine has been perforated. He also drew attention to the advisability of an early operation, as illustrated by the following case. A patient was brought to him three hours after a shot wound of the intestines; laparotomy was performed. At the point of injury there was considerable hyperæmic redness, but the rest of the intestines retained their pearly color and were not congested throughout until the close of the operation. This is an important guide in searching for the injured parts, for had a few more hours elapsed the intestines would have been inflamed all over and the difficulty of finding the wounds much greater.

He thought the operation was contraindicated after the lapse of forty-eight hours after the injury, where the patient is in a state of collapse, and peritonitis present.

As to the essential features of the technique of the laparotomy, Dr. Hamilton does not think they differ from any other laparotomy, except as to the management of the intestines; of course, the usual antiseptic precautions are to be taken, and hot towels placed over the chest, stomach, and intestines. On opening the abdominal cavity, first look for bleeding vessels, carefully examining the omentum, and tying all bleeding points, attending to the slightest abrasion of the mesentery with great care. The intestines should be drawn out, loop by loop, with the finger; the use of instruments for this purpose is not as good as the finger. As the intestines are drawn out, he lays them on a hot towel, covered with another one wrung out in hot water. When the wounds are found, stitch them up as fast as possible, but be careful not to wound the mucous membrane; he prefers to use Lembert's sutures for this purpose, using catgut of small size, cut short; the closure of the abdominal incision being effected as in other cases of laparotomy, the peritoneal

cavity, of course, having been previously thoroughly cleansed.

DR. CHARLES B. NANCREDE, of Philadelphia, then discussed the question—*What are the best methods of after-treatment in cases of gunshot wounds of the intestines upon which laparotomy has been performed?* He said the subject should be considered under three different heads: 1. When peritonitis does not exist at the time of operation; in other words, when a primary operation has been performed. 2. When incipient peritonitis does not exist at the time of operation. 3. When, despite all our efforts, or due to some neglect in technique, peritonitis develops after operation.

Of course, in all cases, antiseptic methods of dressing should be continued. Under the first conditions a recumbent position, with knees flexed, seldom changed, and then not by the patient's efforts, should be insisted upon. Alimentation should be carried on by the rectum entirely, when possible, for at least twenty-four hours, and in some cases even longer, when the stomach is irritable; at the most, cracked ice and small quantities of beef peptonoids should be given when the rectum rejects enemata, or when feeding by the mouth is begun. The higher up the canal the wounds are, the more imperative the rectal feeding becomes. At the end of a few days, full quantities of food may be given. Should tympany occur to any extent, the rectal tube and enemata should be tried; if masses of feces are suspected to be lodged in the colon, about thirty grains of inspissated ox-gall, dissolved in some mucilaginous vehicle, should form the enema, and will sometimes relieve severe tympanites when an ordinary injection will fail, owing to the occlusion of the intestinal tube by fecal plugging.

When incipient peritonitis exists at the time of operation, with the probable formation of large quantities of acrid septicæmic or sapræmic serum, precisely as in similar conditions after ovariotomy, drainage should be instituted; when possible, the tube should be of glass, and have its end kept well down between the rectum and bladder in the male, or in Douglas's cul-de-sac in the female. Presupposing that a previous careful toilet of the peritoneum has been made, the tube should be periodically emptied by a syringe with a soft rubber tube attached, the syringe aseptic, and tube corked with some iodoform cotton. Should the discharge have been or become large or purulent, careful irrigation with a weak bichloride solution, or, if this is feared, boracic acid solution should be resorted to. To favor drainage, a semi-prone position with flexed limbs, changed by the nurse from time to time, is to be advised.

The rules governing the exhibition of opium, stimulants, and the use of cold will be presently mentioned in detail, but it must be steadily borne in mind that neither much food nor alcoholic stimulants will be needed, since the patient will either die or recover before exhaustion demanding large quantities of aliment or alcohol comes on. As will presently be explained, atropia is better than alcohol for the exhaustion—*i. e.*, the shock of commencing peritonitis, or of the late stages, the depression of the nerve centres, especially those of circulation and respiration.

When peritonitis develops after the operation, our initial treatment must depend on whether it comes on gradually or suddenly. When the latter occurs, if there be any evidence of shock, as does occur at times from vasomotor paresis, shown by an apathetic, conscious condition, with extended limbs, pinched features, and a weak pulse, opium in large doses will prove fatal. Here small doses of morphia with atropia will stimulate the heart. The heart itself should be examined by auscultation, since this may demonstrate that it is really feeble while the pulse is hard and wiry. Now, under such circumstances, the pain is often severe, but large doses of opium, unless combined with atropia or digitalis, are very dangerous. I say large doses—I mean those ordinarily recommended for peritonitis in the text-books.

Later, owing to asthenia, the recumbent position, and compression of the lungs by tympanites, hypostatic pneumonia is apt to develop, and then the improperly aërated blood partially paralyzes the respiratory centres. In this condition morphia must be very carefully given, or, better, withdrawn, and always should be used in combination with atropia, ammonia, or digitalis. Stimulating hypodermatic injections and revulsives, such as dry cups to the lungs, are indicated. In case of peritonitis, which develops more gradually, as Burchard points out, the ideal condition to be obtained by opium is freedom from pain, irrespective of the quantity of opium exhibited; and when this is secured, the patient falls asleep, but can be readily aroused. It had better always be given as morphia, and hypodermatically, since opium by the mouth is not always absorbed, and may remain unchanged for days, to be suddenly taken up in fatal quantities.

In the latter stages of peritonitis, especially when the heart and lungs fail, and when gastric regurgitations and hiccough are rapidly exhausting the patient's vitality, one or more hypodermatics of atropia, either alone or in combination with morphine, digitalis, ammonia, or alcohol (Burchard), according to indication, will, at times, save an otherwise hopeless case.

Are there any means which will directly affect the vascular processes involved in a peritonitis? We undoubtedly possess two powerful ones. Free leeching done at the commencement of the attack, or when it has not progressed far, supposing the patient has not lost much blood from the accident, is of signal benefit. This I have witnessed at the bedside of patients, and also experimentally proved, as may be gathered from my *Observations on Bloodletting*, published some years since.

Cold, by means of the ice-coil to the abdomen, is a second means of controlling peritonitis. Cold applied to a peripheral sensory nerve has been shown by physiological experiment to control the afflux of blood to those parts supplied by the vasomotor nerves which inosculate with such sensory branches. In the present resistance the nerve circuit consists of the lumbar nerves supplying sensory filaments to the abdominal parietes, and the branches of the solar plexus which supply the intestines and peritoneum. Cold applied to the former nerves—*i. e.*, to the abdominal walls—will, therefore, cause contraction of the bloodvessels and intestines—it will do more, for it lowers temperature, relieves tympany, and calms the nervous system. If, by any chance, the sutures have failed and gas be in the cavity of the

peritoneum, aspiration may be tried, as suggested by Burchard, to whose admirable paper I am much indebted for useful facts and for confirmation of my own observations.

In such a case, however, I should be more inclined to reopen a portion of the laparotomy wound, introduce a drainage-tube, and freely irrigate the peritoneal cavity with an antiseptic solution. Should persistent and rising temperature, despite the ice-coil, etc., be present without the local signs of peritonitis, I should suspect the presence of some fluids, which generating ptomaines, were being absorbed and producing sapræmia—*i. e.*, septic intoxication as contra-distinguished from septicæmia. In such an event, the reopening of one angle of the wound, free irrigation of the abdominal cavity with mercuric bichloride, and the insertion of a drainage-tube, as already indicated, would perhaps save some otherwise condemned patients. In the same way should septic peritonitis arise with probable effusion of considerable quantities of fluid, such as are often found after death. I should strongly advocate a similar plan of treatment.

Owing to the anatomical position of the kidneys they are liable to become involved when the peritoneum is inflamed, hence the use of turpentine stupes for tympanites is to be deprecated, and Burchard states that "more than one has a timely application of cups, and a digitalis poultice over the kidney saved for him the life of a patient who was insidiously developing a nephritis." Daily examination of the urine should, therefore, be made, since retention of the urinary excreta in Bright's disease is a well-known cause of peritonitis. Digitalis in some form, and perhaps other diuretics are also peculiarly indicated in the sapræmic condition, to aid in the evacuation of the poisonous ptomaines, for if none of these products are allowed to remain in the peritoneal cavity, and if those already absorbed can be eliminated, recovery will often ensue.

I can hardly conceive, as I have already said, of a case of traumatic peritonitis living sufficiently long to develop enough true exhaustion to demand large quantities of food and stimulants; but, should this occur, of course the experiment must be tried, but the stomach will probably rebel. I am sure what would be a deficient amount of aliment for one in health had better be the rule in cases of traumatic peritonitis, all the more as they generally occur in those in robust health.

I am opposed to operating when advanced peritonitis is present. If it were possible to determine beforehand that only one perforation existed, a laparotomy might be done, and providing the injured loop of bowel could be found and secured to the abdominal wonnd, and free drainage instituted, good might accrue; but my experience of laparotomy for diffused peritonitis following rupture of the bowel, and for ball wounds, teaches me that it is extremely improbable that we should be able to find the wounded bowel without excessively prolonged manipulation, that if more than one perforation existed, the gut would be in no condition to suture, that multiple perforations would be so situated that all the loops of wounded intestine could not be secured in the abdominal wound; and if not all, what good can the operation do? and finally, that neither free drainage nor an effectual toilet of the peritoneum could be secured.

Dr. Charles T. Parkes, of Chicago, thought that sufficient data had not yet been offered upon which to form a correct diagnosis.

First, the size of the firearm must be taken into consideration, distance, shape of the bullet and calibre: bullets of large calibre are less likely to glance; though a small bullet may often prove as serious in its result. (Dr. Parkes then showed a drawing in which the intestine had been wounded in two places; the first wound was of an oblong shape, while the last, in which the bullet was found, had shattered the gut, causing an immense opening; the calibre of the bullet being only 22.) Then, again, the result of the injury may be affected by the obliquity with which the missile enters the body. Dr. Parkes then gave the history of a thief who was shot when running away from his pursuers. The bullet was of 44 calibre, and struck him in the back; he fell down, but jumped up and managed to escape. The next morning he went to the hospital, where it was found the ball had entered the back about four inches from the spinal column, and came out near the umbilicus. He never developed any serious symptoms, and left the hospital on the second day.

He thinks that close body shots require abdominal section; also, that round bullets, at ordinary range, do but slight damage, but that the firearms at the present day have immense penetrating force. He considers that every surgeon, on being called to a case of gunshot wound of the abdomen, should go prepared to operate at once. If the patient be suffering from deep-seated pain; the abdomen tender on pressure, with other pathognomonic symptoms, the diagnosis may be safely made. Vomiting of blood may be considered as a positive sign of perforation of the stomach, but still there are exceptions even to this rule; bloody stools, also, would be diagnostic, but these are seldom present in the early stages; ordinary tympanites is of slow development. In two cases he had seen, deep-seated emphysematous crackling occurred; severe injuries to the deep-seated vessels are more liable to bring about shock. He considered that laparotomy adds but little to the danger to life when perforation be present.

As to treatment of intestinal wounds, Dr. Parkes remarked that he would say practically the same as had Dr. Bull. First, diagnosticate positively the presence or absence of perforation; if not satisfied, enlarge the wound and follow it up. It does not necessarily follow that fecal matter should cause peritonitis, or that fecal gas alone will produce it, but fecal extravasation is sure to have this result Always operate on the spot, if possible, and enjoin absolute rest. Should your patient have to be moved, be careful about avoiding shock.

How soon after the perforation of the intestine should laparotomy be performed?

Just as soon as the patient will allow it and the surgeon can prepare himself for the operation. But there are some cases in which it is contra-indicated. As a last resort it should be performed in all cases. An obviously fatal result is a contra-indication, but who is able to assert positively the presence of such conditions; therefore, it may be said that there are no contra-indications to the performance of laparotomy, and any one who has had experience in abdominal surgery meets with great and pleasant surprises in these cases.

What are essential features as to the management?

No surgeon can fail to be convinced that a line through

the linea alba is the only line of incision; this is the same in operations upon the cadaver. The speaker had seen two cases in which the abdominal incision was lateral: the post-mortem of the first one showed fecal matter and blood, which had not been discovered by the operator. In the second case the man was sinking from hemorrhage, the bleeding vessel could not be found, but was traced to the other side of the body, but could not be uncovered, and the patient died.

After the primary incision secure all bleeding vessels, and if necessary, draw out the intestines, passing the whole carefully through the fingers while searching for the wound, keeping them covered with hot cloths. In closing the wound turn the edges in and use Lembert's intestinal stitch, taking up as much tissue as you possibly can. He considered a double row of sutures unnecessary, as being liable to increase shock; the best needle to use being a small round one, putting in the stitches about an inch apart; take up more than the peritoneum, but do not go through into the mucous coat.

Swift bullets make a clean cut; those of diminished velocity do more damage. The large majority of wounds can be treated successfully in the first class of cases. In the latter, resection may be required, the fingers of an assistant being the best clamps in such cases. In some cases the continuous suture may be used, but if there is much oozing, provide drainage; close the wound in the ordinary way, but look out for hernia. Great care should be used in fastening all the wounds, do not make them too tight or sloughing will result; if the peritoneal surfaces are held together for a few hours they will firmly adhere together. It is a fact to be remembered, that the circulation of the tube is not sufficient if the mesentery be destroyed; therefore, care should be taken always to restore the mesentery.

The after-treatment is to be carried out on general principles; the use of opiates, etc.; if the temperature rise, the application of cold externally, but if it does not go over 101°, the patient should be let alone.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, November 5, 1886.

The President, James C. Cameron, M.D., in the Chair.

MASTOID DISEASE RESULTING IN ABSCESS OF THE BRAIN.

Dr. Proudfoot reported a case of abscess of the brain, dependent on mastoid disease. The patient, a girl, aged twenty, was admitted into the Western Hospital under his care, suffering from a discharge of pus from the left ear. She had for years suffered at times from a purulent discharge from the ear, which had followed an attack of measles. Of late the discharge has been more profuse, and a few days before her entrance into the hospital she had had vomiting. On admission her temperature was 100° F., and pulse 65. There was no swelling or tenderness about the mastoid, but she had a purulent discharge from the ear, severe pain in the head, and occasional attacks of vomiting. On examination a polypus was discovered in the meatus and removed, after this the vomiting ceased. The pain, however, continued, and the discharge remained profuse. On consultation it was decided to trephine the mastoid, but when he came a few hours afterward to perform the operation, he found that the girl had died suddenly a half hour previously. A post-mortem examination revealed a large abscess in the middle lobe of the brain, which had burst through the base and compressed the medulla.

REMOVAL OF UTERINE APPENDAGES.

Dr. Kennedy showed the uterine appendages which he had removed from a young married woman, who has the following history: After her first pregnancy she contracted an attack of gonorrhœa from her husband, and this was followed by pelvic troubles, she had incessant pelvic and abdominal pain, which increased exceedingly during each menstrual period, and during intercourse; her life became a burden to her, and she requested that something might be done, and Dr. Kennedy resolved to perform Tait's operation. The operation presented no peculiar features, and the patient made a good recovery. On examining the removed structures the tubes were found to be distended with a serous fluid, and there was complete occlusion of the fimbriated extremity. No pus was found.

Dr. T. Johnson-Alloway asked if anything could be made out by vaginal examination previous to operation. From the appearance of the removed structures he thought the pathological changes were not such as demanded operation, and that the condition could not have been determined by vaginal examination.

Dr. Gardner remarked that he thought the operation of removal of the appendages a perfectly justifiable one; he had performed it with success. The good effects following the operation were not always immediate. In some cases he had found that the pernicious neurotic habit previously acquired was often not got rid of for many months after the performance of the operation; indeed, it might almost be said to be the rule that improvement does not appear for some time, often a year or more. The operation was more suitable in women who had to earn their living, and could not be nursed for months at a time.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, November 15, 1886.

The President, Charles A. Leale, M.D., in the Chair.

Dr. T. Gaillard Thomas read a paper on

LAPAROTOMY AS A DIAGNOSTIC RESOURCE,

which will appear in full in an early issue of The Medical News.

Dr. Joseph D. Bryant said that the question of exploratory laparotomy was, to his mind, the most important one at the present time connected with the subject of abdominal surgery. The distinction should invariably be borne in mind between exploratory laparotomy and what he termed laparotomy in its entirety. He believed that exploratory laparotomy is justifiable in all cases where the diagnosis is doubtful, but with this reservation: that the means should always be at hand for performing the operation in a proper manner as regards antiseptic precautions, hygienic sur-

roundings, etc. Unless the operation is surrounded with proper safeguards, there is danger that discredit will be thrown upon it, and that it will be relegated to the obscure position which it occupied a few years ago.

During the late war gunshot wounds of the abdomen, under the expectant plan of treatment, showed, notwithstanding the many discouraging circumstances which attended them, a percentage of from five to seven recoveries. To-day in laparotomy performed in its entirety (which includes a thorough examination of the abdominal cavity and its contents, the suturing of the wounded intestines, the thorough cleansing of the cavity, and the closure of the wound), there was found to be a percentage of recoveries of no less than sixteen, a gain of more than half. These figures include not only the reported cases, but a considerable number which have come to his personal knowledge, but which have never been regularly recorded. In the cases actually reported, there were nearly twenty-five per cent. of recoveries.

Dr. Janeway said that the part of the paper which particularly interested him was that which referred to certain diseases of the abdominal cavity. The question of laparotomy in medical cases was all the time coming more and more prominently before the profession. In peritonitis, however, the conditions are usually so unfavorable that it was improbable that the exploratory operation would be attended with very brilliant results. He said he became so impressed with the unfortunate results attending purely medical treatment in many cases of peritonitis, that in a case last spring he resolved to give the patient the benefit of the best surgical advice, and called Drs. Bryant and W. T. Bull in consultation. It was one in which there was no hope of recovery whatever unless from operative procedure; and as this offered a possible chance (though the prospect was not by any means encouraging), it was resolved to perform laparotomy. This was accordingly done, but the patient unfortunately lived only twelve hours afterward, the autopsy showing a perforation of the vermiform appendix. Still, he believed that the operation was justifiable, and he should recommend the same again in any case in which the diagnosis could be made sufficiently early.

There is always more or less uncertainty, however, about the diagnosis in such cases, as was well illustrated in the case of a physician which had come to his notice. This gentleman had already had two attacks of what was apparently well-marked perityphlitis, when there were great pain and tenderness in the right iliac fossa, accompanied by a temperature of 104° lasting for a week or ten days. Last week he had another such attack, while in Boston, and laparotomy was then performed there by Dr. Marcy. Curiously enough, however, the exploration of the abdominal cavity revealed the fact that there was no assignable cause to be found for the trouble, though all the special symptoms regarded as typical of perityphlitis were present. Fortunately the case terminated favorably, and now, at the end of five days after the operation, the patient was doing well.

In many cases of perforation of the intestines in typhoid fever he said he would be inclined to recommend the trial of laparotomy, if the condition were recognized, especially by the presence of liver resonance, sufficiently early; and one case of this kind with a favorable result has already been reported in Germany.

Dr. Ira B. Read presented specimens from a case of

RUPTURE OF AN ANEURISM OF THE THORACIC AORTA,

as a sequel to a paper read before the Association several months ago. The case then reported was one of double popliteal aneurism where both femoral arteries were successfully ligated, the one in June, 1882, and the other in February, 1883. It was consequently more than three and a half years since the last operation, and more than four years since the first. The patient, while pursuing his usual avocations, died suddenly on the afternoon of October 29th, and at the autopsy made on the morning of the 30th, the pericardium was found filled with blood. On opening it the heart was found to be completely embedded in a large clot of blood, and further search showed that there was a rupture of the ascending portion of the aorta, the orifice in the sac easily admitting the finger. There was, however, but little dilatation observed, and other parts of the aorta showed marked atheromatous degeneration, so that rupture would soon have occurred in some of these had not the point of rupture described proved the earliest.

Dr. Read also exhibited a section of the femoral artery above and below the point of ligation. Below, the artery was occluded by what seemed to be an organized fibrous growth, while above there was the ordinary appearance of the normal artery. Unfortunately, he said, he was never able to examine the patient for abnormal heart-sounds or aneurismal bruits since the last operation; but at that time there were no physical signs of aortic aneurism.

He had not been able to find any probable cause for the arterial condition which existed in this case. The patient being a man of thirty, apparently in full vigor, with no history of syphilis, either present or remote, and not intemperate, he could only accept the fact that there was an atheromatous condition of the arteries which predisposed to aneurism, and finally led to his death. The heart was normal in size, and the lungs and liver healthy in appearance, but the spleen and kidneys were very much enlarged.

Dr. Janeway presented a specimen of

PERFORATION OF THE INTESTINE IN A CASE OF TYPHOID FEVER.

Peritonitis was present for two and a half days before death, but the usual flatness of the liver on percussion was not replaced by resonance sufficiently early to permit of any possible hope from a resort to exploratory laparotomy. The gas in such cases sometimes escaped very slowly, and the difficulty in regard to the operation was, that unless the liver flatness was lost, and there was severe pain, we could not feel assured that peritonitis was present. Indeed, in all cases there was some degree of uncertainty, since cases of supposed perforation and peritonitis had been known to recover. In reality, however, they were cases of enteritis or of gastritis. Such cases, therefore, should make us hesitate to perform laparotomy, unless the diagnosis were very clear.

NEWS ITEMS.

The Pope's Model Cholera Hospital in Rome.—A correspondent of the *Globe* gives an interesting account of the "model cholera hospital" which the Pope has caused to be erected in Rome for the accommodation of cholera patients in case of an epidemic. Contact with the outer world is carefully guarded against by grated windows, telephones, and by a revolving barrel with half its circumference open, by which provisions are taken into the hospital. The water-supply is drawn from a well, and is quite separate from the city supply. The drain is formed of an iron tube sixteen inches in diameter, the joints being hermetically sealed with lead. There is a disinfecting boiler in which corrosive sublimate is placed. There is a room called the "chamber of observation," which has a staircase leading up to the first floor. In this room dead bodies are placed for a given time, as it is well known that cholera patients often show signs of being quite dead when really only apparently so. The room is, by means of an electric apparatus, in communication with the director's office. The body being laid on a bed, both hands are put into a sort of copper muff; between the hands is put an instrument so sensitive that, should there be the slightest movement of the hands or any other part of the body, this instrument would instantly close the electric circuit, and the bell in the director's office would be set ringing; at the same moment another instrument registers the number corresponding to the bed upon which the body is lying. The chamber is warmed by steam so as to facilitate resuscitation. The laboratory is provided with a gasometer for the storage of oxygen, which is taken to the wards for administration in gas-bags. On the ground floor are four wards for doubtful cases; should they get worse, they are sent up in the lift to the cholera wards above, their clothes and bed-linen being immediately burned. Another room is set apart for women in childbirth, and there are two more for undressing patients, so that the infected clothes may be destroyed, the Pope furnishing new clothing for all recovered cases. The cubic space allowed for each bed is thirty-six cubic metres. The ventilation is carried on by means of funnels with gas jets below. The chapel is in communication with the sacristy of St. Peter's, so as to form an easy access for the Pope should he wish to visit the hospital; but before returning into the sacristy his Holiness and suite would have to go into a room near it for disinfection. In the event of there being more cases than the hospital can hold, provision has been made for building large sheds in the garden. This hospital was begun in October, 1884, and finished in April, 1885. When the cholera was raging with such violence in Naples, Leo XIII. determined upon making preparations should the scourge visit Rome. It has never been necessary to use it, but it is always ready in the event of an outbreak, and would prove of much use in extirpating it.

Cremation in Australia.—The legislature of New South Wales has passed an act which legalizes cremation in that colony. Crematoria are to be established. The plans must pass the Board of Health, and every applicant for a license must satisfy the governor that he is the owner in fee simple, and has general consent to allow of cremation upon the land.

Errors in Delicate Weighing.—M. Hennig, of Würtzburg, having noticed some incomprehensible differences in the weights of equivalent quantities, undertook some minute investigations, which showed that balances of precision are often influenced by the electric state of the glass cage which surrounds them. This electricity influences the small auxiliary slides which are placed upon the beam of the balance in order to make it more sensitive. The error resulting from this influence may amount to 600 milligrammes when the cage is strongly charged, and two hours afterward there may still be an error of ten milligrammes.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 16 TO NOVEMBER 20, 1886.

Greenleaf, C. R., *Major and Surgeon.*—Relieved from duty at Columbus Barracks, Ohio, and ordered for duty as attending surgeon at Headquarters of the Division of the Missouri and Examiner of Recruits at Chicago, Ills.—*S. O. 268, A. G. O.*, November 17, 1886.

Tilton, Henry R., *Major and Surgeon.*—Relieved from the duties of attending surgeon at the Headquarters of the Division of the Pacific and the Department of California.—*S. O. 96, Division of the Pacific*, November 9, 1886.

Waters, W. E., *Major and Surgeon.*—Ordered from Fort Spokane to Vancouver Barracks, W. T., for duty at that post.—*S. O. 197, Department of Colorado*, November 8, 1886.

Par. 8, S. O. 257, A. G. O., November 4, 1886, is so amended as to direct Major V. B. Hubbard, Surgeon, to report in person to the commanding officer of Columbus Barracks, Ohio, for duty.—*Par. 3, S. O. 268, A. G. O.*, November 17, 1886.

Caldwell, D. G., *Major and Surgeon.*—Granted leave of absence for one month, with permission to apply for twenty days extension.—*S. O. 150, Department of the Platte*, November 12, 1886.

APPOINTMENTS.

Moore, John, *Lieutenant-Colonel and Assistant Medical Purveyor.*—To be Surgeon-General of the Army, November 18, 1886.

Ball, Robert R.—To be Assistant Surgeon with the rank of First Lieutenant, November 19, 1886.

PROMOTIONS.

Baily, Joseph C., *Major and Surgeon.*—To be Assistant Medical Purveyor with the rank of Lieutenant-Colonel, November 18, 1886.

Heizmann, Charles L., *Captain and Assistant Surgeon* —To be Surgeon with the rank of Major, November 18, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 20, 1886.

Nash, Francis S., *Passed Assistant Surgeon U. S. N.*—Ordered to special duty Smithsonian Institution, November 26, 1886.

Rhoades, A. C., *Medical Inspector U. S. N.*—Ordered to special duty attending officers and families New York City.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia*

THE MEDICAL NEWS.

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ORIGINAL LECTURES.

ON SOME ODD-LOOKING DISORDERS OF THE SKIN, PRODUCED BY COMMON CAUSES; AND THEIR TREATMENT.

A Lecture delivered at the Clinic for Skin and Venereal Diseases, Rush Medical College, Chicago.

BY JAMES NEVINS HYDE, M.D.,

PROFESSOR OF SKIN AND VENEREAL DISEASES IN RUSH MEDICAL COLLEGE, CHICAGO.

GENTLEMEN: The first patient presented to us to-day is a fair-skinned English woman, thirty-five years old, the mother of three healthy children, two of them, as she says, victims of the disorder from which she herself suffers. Three weeks ago, after a steerage passage across the Atlantic, she arrived in this country; and, though never before similarly affected, has ever since been suffering from a disease of the skin. The parts affected are the face, the arms, especially the forearms, the hands, and, to a much less extent, the feet. The children, not present, are described as exhibiting the disorder in the same regions of the body. A physician who was consulted in order to procure relief from the severe and incessant burning and itching sensations of which she complained, is reported to have declared that she had syphilis, and to have ordered a solution of the iodide of potassium to be taken internally. The mere recital of these facts alone should lead every one of us to the diagnosis of the malady.

When we examine her with care, we see that her skin presents a picture of really serious mischief. The arms are enormously distended, the integument being infiltrated, tense, shining, hot, and of a bright reddish hue, strongly suggestive, indeed, of the erysipelatous skin. It is covered here and there, more particularly the skin of the forearms, with superficial pea-sized to finger-nail sized, discrete, and moderately distended blebs. Some of these are filled with a clear serum; others are ruptured. Among them may be recognized erosions made by the nails in scratching, thin and superficial crusts, and the detritus of the stratum corneum where blebs have existed. Looking at the face, it is plain that here the skin is less tumid, but thickly sprinkled with minute, engorged papules of the "pruriginous" type, and also with bullæ, the latter fewer than over the arms, and yet similar as to their general characteristics. Here also are crusts, the débris of ruptured blebs, and erosions from the play of the hands over the part. The erysipelatous appearance is here much less suggestive.

As several patients in nearly this same condition have been shown here during the last few weeks, and the eruptive phenomena have been remarkably alike in all, you will, some of you, be quite prepared for what is to be said of them all. First, however, I desire to admit very frankly, that five years ago I was greatly perplexed by cases of this sort, and that my attention was first directed to their real nature by my friend, Professor James C. White, of Boston.

Now, as we look at the skin picture before us, we revert naturally to the somewhat long list of maladies characterized by a bullous efflorescence, such as erysipelas, hydroa, pemphigus, pompholyx, and the several herpetic disorders. Yet here we have a malady of much simpler etiology than the most of those named. It is an eruption produced exclusively by the depredations of the mosquito, upon the sensitive and tender skins of women and children who are totally unacclimated, and thus unprovided with that kind of protective inoculation which is furnished by generations who have endured, and thus secured partial immunity from such attacks.

The American mosquito, related to the *simulium pertinax*, is not found in Great Britain, the "gnats," of which the people of that country occasionally complain, being a more harmless variety of the *culex pipiens;* and these inflict only the most trifling damage upon the skin.

I take it that you are all familiar with the picture of the face and arms bitten by mosquitoes. It is the bullous lesions of the integument exhibiting the erysipelatous appearance, that furnish the peculiar features here, and are quite characteristic of the skin of the newly arrived immigrant who has been assaulted by these insects. However, I call your special attention to the fact that in some regions of the West and Northwest, not settled by lately arrived immigrants, this form of eruption may be occasionally recognized. Nor is it only the English, Irish, and Scotch, who give us the portrait you have before you. It may be observed (though in my experience less frequently) among the Germans, the Scandinavians, and others coming here chiefly from the northern European countries.

The history is usually the same, the features of the disorder being modified in different cases: A midsummer or fall passage across the Atlantic, usually in the steerage; occurrence of the eruption speedily after landing; residence in one of the poorer class of tenement houses, unprovided with screens and nettings to prevent the incursions of the marauders; and appearance of the lesions only upon the exposed parts of the body, the face, the hands, and, to a less extent, the feet. Then comes a visit to the public dispensary, where too often the administration of arsenic, the iodide of potassium, or mercury, intensely aggravates the irritation of the tormented skin. Fortunate the patient, thus afflicted, when he falls into the hands of a physician who, though ignorant of the disorder with which he is confronted, is wise enough and judicious enough to refrain from aggravating the disease, if such it may be called.

Women and children of the class described are often huddled together with scanty bed- and body-clothing, which may be tossed off in the unconsciousness of sleep and in the agitation produced by the mosquito stings. In this way is to be explained the occasional occurrence of the rash we are studying, on the belly, and even on

the back. Do not be put off your guard by statements as to the existence of the eruption in unusual localities. I have seen the bullæ now shown you, over the skin of the penis in the male. I think you can now understand why I said at the outset that the history alone of this odd-looking eruption points to its diagnosis.

The treatment is simple; First, the removal of the cause, which our patient, now that her attention is called to it, admits, with some laughter, has operated in her case. After the sleeping apartments have been protected by screens, which even the poorest are glad to use when informed of all the facts, we shall make a solution of starch precisely as the laundresses make theirs, first with cold water then with the addition of hot, the paste being well cooled before its application. To each pint of this, we will add a drachm of the zinc oxide, mixing it thoroughly with the whole. This will be grateful to the skin, and, when some relief is obtained, we shall direct merely the use of a dusting-powder of dry starch. For the milder cases, weak lotions of camphor, or of the potassic chlorate are popular and efficient topical remedies.

Our next patient is a vigorous man, twenty-seven years of age, and unmarried, who comes to us all the way from Kansas, to be relieved of what he says is there called "the prairie itch." He has suffered greatly for a fortnight; and is really alarmed at his condition. He complains of an intense itching, with nocturnal aggravation, produced by an eruption affecting the trunk and thighs chiefly, but also generalized, the face, hands, and feet escaping.

On removal of the clothing, the skin is found to be soaked in sweat, and in the regions named covered with minute, bright-red papules, excoriations, thin superficial crusts, scratch-marks, and some larger, raw erosions. Inflamed, and acutely inflamed regions of the skin are conspicuous, especially in the groins, over the belly, the upper thighs, the popliteal spaces, and the axillæ. The integument of the trunk, in large areas, all other lesions excluded, is of a bright red hue, in fact, of altogether too bright a red to enable us at a glance to classify it with the shades we commonly recognize in a hyperæmic skin. It has a suspicious scarlet quality in its tint.

I ask you to look closely at this color, for you will perhaps need to recognize it one day when you may not have, as here, the opportunity of comparing it on the spot with the color of the material from which, chameleon-like, its hue is gathered. Notice that even in the temperature of this fine weather, the patient is wearing next his skin thick flannel under-garments, dyed in the popular scarlet shades produced by the cheaper dyes made of aniline and picric acid. Outside of these brilliant garments, his white shirt at the waist, armpits, neck, and nether flaps is deeply tinted by these dyes, which his profuse sweating has in part dissolved. In the same way the skin beneath, is not only reddened by a hyperæmia resulting from the irritation induced in it, but is, beside, actually dyed to a shade scarcely less brilliant than that of the clothing. The misfortunes of our patient, as we now discover by questioning, date from the wearing of these garments, which were first purchased in the effort to secure relief from a "rheumatic" attack. Thereafter, came the profuse sweating on a hot day in the State where he was working; then the irritation of the skin, both by the sweat, the flannel, and the dye; then the scratching and the consequent traumatisms; lastly, the composite picture, the details of which we have been endavoring to study separately.

What is the so-called "prairie itch? Who can answer? It is a name—that and nothing more. In one mouth it means one thing; in another, another. All popular names have a similar indefiniteness. The folk-speech that gives us to-day, the "rheums," "tetters," "scalds," "cradle-cap," "itches," "manges," etc., includes syphilis, lichen planus, eczema, all the dermatitides, and even disorders produced by vegetable parasites. It is, I believe, within bounds to say that, in the majority of cases, the words "prairie itch," describe cases of more or less generalized cutaneous pruritus, occurring in a given community more or less extensively, and produced by many and different causes. In one place, sudden and severe temperature changes may be responsible for it, such change being usually from the higher to the lower degrees; in another place, acari; in another, these and other causes coöperate, as where the coarse flannel under-garments worn by the poorer classes in cold weather, the traumatisms of scratching, and improper internal or topical treatment have greatly complicated the whole etiological question. Here is a man who says that he has this disease, and that it is extensively prevalent in the place from which he comes to us; yet we find that he is suffering from a dermatitis venenata—the skin poisoned by a dye externally applied. If he had come to us from Boston, or Philadelphia, he might never have heard of the "prairie itch," and might then have given us some other popular name for his malady, having no more significance than that actually on his lips.

Cases of dermatitis from these cheaper dyes, have been reported by a number of observers, for example, by Dr. Duhring, of Philadelphia, who has seen the feet of women thus affected by the red lining of their boots, even when a stocking was interposed. Few have seemed to call attention to the color of the skin when in this way it is actually dyed. My first observation of this accident was upon the neck of a young man recovering from a syphilitic exanthem, who became greatly alarmed by the appearance he presented. He exhibited a conspicuously brilliant, and tolerably well defined collar, of a vivid red hue, encircling the neck, which, after some investigation, I discovered to be the result of a profuse sweating when he was naked and wrapped in a blanket, the bright-red edge of which had been gathered closely about the neck. It seems that at last our English brethren are awaking to this source of trouble in similar cases, for a recent correspondent of the *British Medical Journal*,[1] under the title "Socks of Nessus," calls attention to severe eruptive symptoms, even in one case of erysipelas, resulting from these dyes in both woollen and silk stockings of the popular red, yellow, and striped colors. In some of these articles he detected not only the cheaper aniline and picric acid dyes, but also arsenic, and, like a true Briton, calls upon his Board of Health to stop the sale of these garments.

In the way of treatment, we shall order for our patient, first, the wearing of soft, white under-garments (the best is the "Lisle-thread" of the shops), outside of which can be worn the woollen which his supposed "rheumatism"

[1] October 16, 1886, p. 729.

requires. Next comes the local treatment of the skin. It is to be bathed in water as hot as is grateful to the sensations, without soap, and a muslin bag filled with common bran is to be squeezed into the water before its use. Too much bathing is harmful to a skin as acutely affected as is this; but it is well to make occasional use of the hot bath, when there has been accumulation of physiological and pathological products on the surface. We shall not attempt to scrub off the dye in this first bath, because our efforts would aggravate the disorder we are treating, and would, beside, be fruitless, even if we employed alcohol to aid in this removal. It is best, in most of these cases, to let the color of the skin remain unchanged, as the worst harm is already done, and the indications are urgent for soothing the surface.

After the bath, the skin will be anointed with a salve composed of one part of Hebra's diachylon ointment to two of vaseline, the whole containing ten grains of salicylic acid to the ounce. This will serve for relief of the skin until much of the disorder is at an end, after which it will be well to apply a simple salve, such as cold-cream, followed by dusting with a finely powdered starch. He is to keep his hands from wounding the skin as far as possible. We shall find that a few days' rest in bed will be an excellent way of beginning the treatment in all these cases.

I think that you will agree with me that our next patient has an "odd-looking" disorder of the scalp. He is unmarried, twenty-three years of age, and is sallow-faced, thin in flesh, and hollow-eyed, with the facial expression we are apt to discover in the morbid mental state of the confirmed sexual hypochondriac. His scalp is, for the most part, covered with short-cut hairs, but, parallel to the sagittal suture, and somewhat to the right of it, stretches a fairly well defined, riband-like space, about two inches in width, extending from the upper line of the forehead to a point somewhat behind the vertex, where it is gradually lost. This space, he tells us, has been for many years the seat of a disease which has defied the skill of many physicians and the potency of many drugs. It began with some "sort of a worm eating the roots of the hairs" in a space which was originally epilated by a physician, whose advice was sought but who was unable in this way to check the progress of the disease. Since that time the patient has found it necessary to perform the same operation himself.

When we examine this area of the scalp, we are only able with the naked eye to discover a few irritative papules, similar to those seen in a mild case of acne of the face, existing in the bare epilated patch which, in its definite outlines, suggests the swath cut by the mower in a field of tall grass. There is absolutely nothing more. I will add, however, that before this hour I carefully removed and examined with the microscope specimens of the few hairs left in the bald patch, and also others in its vicinity, without being able to detect the slightest trace of a parasitic or other disease of the part.

What is the nature of this trouble? I have presented this patient to you to-day because I have lately had another consult me privately for a similar affection, and occasionally every physician is confronted with a class of patients of whom this one may be regarded as a type. Is it possible that any parasite, vegetable or animal, could continue for years to mow down a swath of hairs in this manner, the outlines of the swath always the same, parallel to the sagittal suture, and slightly to the right of the median line? Such a possibility can scarcely be considered. But it is not at all difficult to understand how a right-handed man (and I will add that this is a right-handed man), after acquiring the trick of epilating his own sound hairs with his right hand, could keep as bare as this the island of his scalp which is so deforming. This is the explanation, and the only explanation, of the singularity of this case. Now you see why the bare patch is parallel to the sagittal suture and nearer the right temple.

Originally, there may have been here some disease of the scalp. There may have been a tinea capitis, a patch of localized seborrhœa, possibly a disorder actually requiring the epilation it received at the hands of his physician. That is neither here nor there at present, for we pronounce the scalp free from all disease save that it is the seat of the incessant irritation produced by the action of the fingers.

It is a curious element in the case, as in so many others of similar import, that this patient was dimly conscious that he and he alone was the cause of all the mischief; and yet that he never made a confession of the fact to any one whom he consulted. When in private, I probed his supposititious secret to its very bottom. He was not a little shamefaced over the whole matter. He admitted, when once I had gained his confidence, that he had shaved his beard merely because he had acquired the vicious habit of plucking that out also; and that he was almost unconscious of the play of his fingers over his scalp, seeing that even after protecting his head with a bandage, he had discovered himself pushing it up and away, and dragging out every hair in the reach of the fingers.

In brief, this is one of those wretched perversions of habit that afflict a few men in every thousand, who, in other respects, seem to have tendencies toward uncleanliness and filth. Picking the nose, titillating the genitals, boring out the ears, cracking the knuckles, epilating the eyelids with the fingers, scratching the anus, these are but a few of the tricks played upon themselves by persons who are never content when not manipulating their own persons. The next morbid craving of their souls, is to perplex a few inexperienced physicians into treating them from the wrong side. In the latter event, their mental process is a curious and pitiable one, being a strong hope that they can find some one who, in spite of their feeble resistance and secrecy, will penetrate to the real basis of their disorder, and also a dim conviction that, everything said and done, they are really morbid in mind and body, and need help.

More than half of the treatment is the establishment in the mind of the patient of a conviction that he is under the direction of a man who has got at the core of his case, and who has the courage to be merciless in driving him out of his habits while pitying his condition. A judicious admixture of scolding and encouragement is always needed. We may have to shave this scalp before we break up the habit he has formed; and shall certainly see that the hands and the brain are busied with exacting labor. Toil, daily, absorbing, exacting, and rewarded by its legitimate fruits, is Nature's great panacea for these singular morbid states.

Our last patient for to-day is an unmarried man, twenty-nine years of age, somewhat pallid with anæmia, who gives us the history in his case, of an eruption enduring for ten years. Originally, the face only was involved, but soon after the trunk was also affected; and, for the most part, since the beginning, the trunk only, as now, is the seat of a cutaneous disorder. The treatment he has pursued, has exhausted, he says, his means, his patience, and his vigor. It has been varied, received at the hands of many physicians, and in several of the popular health resorts of this country, but always without benefit.

The posterior surface of the trunk of his body being now fully exposed to the view, it is not perhaps strange, considering the oddity of its appearance, that no one of you can determine the nature of the malady,

You see that the back is practically symmetrically involved, from the shoulders above to the upper border of the lumbar region below, in a singular change. The predominant result is declared in multiple, whitish, indurated, irregularly disposed, and elevated bridges of cutaneous tissue, these bridges varying in size from half to full finger-nail, abutting on sound skin, or other smaller bridges, or on other lesions less numerous and conspicuous. These others are irregularly disposed among the scar-like bands, and may be described as giant pits, the orifices of which are only rarely plugged with gigantic comedones; pigmented, purplish, and dirty-colored blotches, and indolent nodules of irregular form. The general picture, however, of this odd-looking back is produced upon the eye of the observer by the scar-like puckerings which, seen from a short distance only, suggest a field of skin so ploughed up in every direction as to form elevated ridges resembling in point of color those parts of the same field where the furrows lie. The other colors visible bear no considerable proportion to the dull whiteness of these embankments.

Rather than as a disease, this condition would be better described as the relics of a disease that has been. It is a form of keloid following severe acne. I will not say the "acne cachecticorum" of the books, for the appearance of cachexia in cases like this is often the fruit of mismanagement of a disorder in a man who is not cachectic.

We will not discuss the distinction between idiopathic and cicatricial keloid in this connection. It must suffice for us to note now, that the cicatricial variety of keloid occasionally follows the simpler as well as the severer forms of acne. It is a serious and practically irremediable deformity when seated upon the face of a young woman, and the prudent practitioner should never once lose sight of the possibility of its occurrence after the treatment of any case.

It is surprising how many otherwise excellent chapters have been written on the subject of acne, without reference to this one of its complications. When you are tempted to take a bistoury and incise fifty or more acne papules on the face of a young woman, remember the possibilities of future mischief in the production of cicatricial keloid, and ask yourselves whether a properly disinfected needle in a firm needle-holder, its point neatly rounded on the emery-wheel, will not answer the purpose equally well.

But in this connection, the point of chief importance is not to be slighted. We have here an object-lesson on a large scale, in the picture upon the skin of the vast damage to it which may result from the indescribably vicious practice of attempting to cure a disease by "driving it out." Our patient, with a rough eloquence not unmixed with indignation, describes how, year after year, he has been subjected to this method of treatment by the aid of the iodide of potassium. The definite limitation of the disease to his back, soon after the date of its appearance, was probably due to the fact that he was a day laborer, wearing coarse under-garments, sweating profusely, and began by local treatment of this region. The more profuse the eruption induced by the drug he swallowed, the more he was led to believe his disease was being "driven out," and thus eliminated. We need not gather the numerous details he gives us as to the several devices, local and general, which have been actively tested in his case. It is sufficient for us to know that he presents no evidence whatever of syphilis; that he denies all syphilitic infection; and that there is not the slightest indication in his case for the use of such a drug as the iodide of potassium. I have said so much lately on this same point, that I merely remind you at this time that the iodine salts are actually excreted by the sebaceous glands; and that we are almost ready today to concede that every one of the primary lesions of the skin, from the macule to the bulla, in every conceivable combination and disposition, may be by this means alone, both begotten and fostered. The expert of the future may be able to demonstrate to others all the external features of the disorders assigned to dermatology, by the aid of a single drug, exhibited to a single patient!

I will not say that cicatricial keloid in the extensive development we have here, is due solely to the administration of the iodide of potassium. But I will say that the severer forms of acne are those where we may look for cicatricial keloid; and that the severer forms of acne are usually those aggravated by the internal use of the iodide of potassium.

For this patient the worst is at last over. Not all the sebaceous glands in his back are sealed with scar-tissue; but the exceptions are few, and represented for the most part by the wide-mouthed pits visible here and there, distended with giant comedo plugs. The pigmented and colored maculæ represent the points where the last vestiges of the storm raged, the fury of which abated chiefly because it had worked its worst over the only accessible field. Nothing can be done to relieve the back of these relics of what is past, since even surgical interference is liable to aggravate the condition by new sequelæ of cicatricial keloid.

What we can do is to insure against future trouble by excluding all improper medicaments from his stomach; and by administering a ferruginous tonic for relief of his anæmia. We shall teach him a needed lesson on the hygienic management of his skin, that of the back included; and the future will have no such terrors for him as the past.

And now, gentlemen, glancing over this group of cases in which odd-looking symptoms have been exhibited, it seems to me that the lesson taught is a clear one. When unusually strange or odd-appearing features are displayed in any case, do not commit the blunder of supposing that, for that reason alone, the disease is rare of

occurrence, or obscure in character. In the majority of all such cases, the truth lies in precisely the opposite direction. Oddity, irregularity, non-conformity to the rule, may, it is true, be due to the existence of rare and formidable disease. But, in the large proportion of all cases, such oddity is due to the interposition of a simple cause which lies right at hand, and which some common sense and moderate skill will drag to the light.

If, for example, a woman infected with syphilis, exhibits as many and as formidable mucous patches in the mouth as does the most inveterate tobacco smoker, the result is not due to any peculiarity in her syphilis, but may be, as in a case lately shown here, owing to the fact that the woman is an inveterate smoker of a common clay pipe. Or, if we find an eczematous patient with a well-defined bracelet-patch of the disease on each wrist, instead of referring the disorder to some peculiarity of the eczema, it is a great deal safer to assign as a cause the fretting of the affected surface by the stiffly starched edge of the linen cuffs, which are rather more sharply effective in the production of these symptoms when they are both stiffly starched and somewhat frayed at the edges.

Remember, lastly, in your search for these efficient factors for the production of odd-looking characteristics of any disease, that from the moment a man rises in the morning to use his razor over his chin, and a woman to lace her corsets about her waist, throughout the entire day, whether engaged in eating, drinking, swallowing medicine, or applying liniments, whether wearing spectacles that bind the ears, or a truss that offends the groin, whether tormented by louse, bug, or acarus, in all the occupations, trades, and employments of life, up to the hour when, the day's labor ended, the clothing is removed from the body, and the hands in sheer idleness proceed to scratch the shins and other accessible parts, in order to relieve the faintest grade of pruritus—from first to last, there are a thousand vulgar sources of mischief for the skin, to one that is called by a very learned name and has been studied only in a foreign country. There is no better study for the modern physician than the interpretation of the apparent mysteries of every day's experience.

ORIGINAL ARTICLES.

STRANGULATED HERNIA, WITH A REPORT OF THIRTY-THREE HERNIOTOMIES.[1]

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Its frequency of occurrence and the existing possibility in any case of its becoming dangerous to life make hernia an affection deserving and demanding the careful consideration of every practitioner.

At the best it is a positive annoyance, and a grave obstacle to success in many vocations; at the worst it is an almost certain cause of death. No ruptured person, so long as there is an existing protrusion, is safe against its strangulation; and strangulation, if unrelieved by art, in the great majority of cases terminates fatally. Spontaneous reduction occasionally takes place; a few patients recover after an artificial anus has been established by gangrene; but neither the one termination nor the other is to be looked for or calculated upon.

Of three-quarters of a million (756,893) deaths reported to the Census Bureau in 1880, and analyzed in the volume of Mortality and Vital Statistics, one in 600 was from hernia; and, strange to say, one-ninth of these 1236 deaths, 141, were of children less than a year old, the whole number in persons under thirty being only 293. Hernia is common enough in infants, but the occurrence of strangulation is very exceptional. Here in Cincinnati, in twelve years past, the deaths from rupture, as reported to the Health Office, have been 109, and they are now averaging one a month. Unquestionably the actual mortality from this cause is greater, the fatal result being oftentimes attributed to other affections.

Though the symptoms of strangulation are ordinarily clearly manifested, they may be ill-defined and doubtful. In every case of acute constipation, vomiting, and abdominal pain, careful examination of the hernial regions must be promptly and thoroughly made; every suspicious lump, be it never so small, should be regarded as a hernia until proved to be otherwise. Many a life has been lost because a supposed lymphatic gland was not uncovered; and not simply uncovered, but opened up. I have seen a small mass of omentum in the right inguinal region so closely simulate in shape, size, and color an enlarged gland that it was not until it was cut into that I was satisfied of its nature; and yet that small mass had within a knuckle of bowel tightly constricted. In a very fat subject a small protrusion may be detected with great difficulty, or not at all; but in ninety-nine cases out of a hundred an inguinal or femoral hernia can be discovered if proper search is made for it. Even if the bowel obstruction be not complete, if the other symptoms are present, and there is an abnormal fulness just above or just below Poupart's ligament, an exploratory operation should be made. A patient in the medical wards of the Cincinnati Hospital, eight years ago, had vomiting, with abdominal pain and tenderness, but not fecal obstruction. As there was a small suspicious lump in the left inguinal region I cut down upon it, and exposed the gangrenous top of a knuckle of bowel, the constriction involving only the anterior wall of the sharply flexed gut, leaving free enough of the lumen of the tube to permit the passage of thin fecal matter, and the patient had four stools during the forty-eight hours that he was in the hospital before I was asked to see him.

The hernia recognized, it must be reduced. Taxis, if it succeeds, accomplishes the desired purpose without exposing the patient to the risks of an open wound; but, if the return of the bowel is effected only after long-continued severe manipulation, dangerous and usually fatal inflammation may be the direct result of the violence done; the taxis having, instead of putting in order, sadly put out of order. Fortunately the bowel oftentimes recovers from the effects of much violence.[1] Sometimes, though no

[1] Read before the Cincinnati Academy of Medicine, November 15, 1886.

[1] Perhaps unfortunately, for, if it were true and thoroughly well understood that the exercise of other than gentle pressure would

undue force has been employed in the reduction, a general peritonitis is soon developed by direct extension from the previously nipped and already inflamed intestinal loop, such extension rarely taking place so long as the tight constriction remains. If the protracted, or repeated, or violent manipulation fails, and recourse must be had to the knife, the probabilities of a successful issue are greatly diminished by the delay and the local injury from undue pressure.

What is proper taxis, as respects both time and force? It is impossible to say. Judgment and knowledge should in every instance direct and control the manipulation. One thing is certain, taking numbers of cases together, there is very much more danger in severe prolonged taxis than there is in herniotomy. So far as patients are concerned, it is better to cut too soon and too often than to delay too long in the hope that further and more forcible efforts may secure reduction. While it seems to me unwise to fix any arbitrary short limit, whether it be five minutes or half an hour, beyond which manipulations should not be prolonged—for what is right in one case and to one person may be altogether wrong in and to another,—yet I am not sure but that fewer lives would be lost than are now if it was the rule to operate at once on every case that was not speedily relieved by the efforts of the patient himself. No ruptured person is liable to damage himself seriously, though he may occasionally do so; but the same cannot be said of the inexperienced practitioner, especially when working upon an anæsthetized patient.

The more I see of hernia the more I am convinced that, if the protrusion does not go back readily and speedily, the best interests of the patient will be subserved by an early operation. If the constriction is outside the sac, and the lesser operation is all that is required, there is almost no risk in its performance, and a speedy recovery, often by first intention, may be expected. One of my patients on the ninth day walked a mile and had a truss fitted. If the sac must be opened, the danger is increased; but, under present methods of treatment, not greatly so. Of the fatal cases that I have had, in but one was death due to the wound; and in that case it was tetanus, a rare complication, that interrupted what had been for more than ten days, and promised to continue to be, a steady progress toward recovery. So little is the danger now directly due to the opening of the sac, and so great is the risk to life if an ulcerated or dying knuckle is returned into the peritoneal cavity, that I believe it is the wisest course in all cases other than those of very short duration to expose and examine the constricted bowel or omentum; especially since, by including a stump of the sac in sutures passing through the margins of the external inguinal or femoral ring, early reprotrusion is prevented, and a radical cure of the hernia may often be effected.

But, it may be said, why talk of the little risk of the operation for strangulated hernia, when from one-half to two-thirds of those operated upon die? Granting the mortality, is it in any considerable measure due to herniotomy? No; but almost always to shock and peritonitis, in the production of which the prime factor is the prolonged period of strangulation. We can well understand why a severe intestinal injury produces a most profound impression upon the sympathetic centre, the abdominal brain; and what to a loop of bowel can be a graver traumatism than a long-continued tight constriction. I have found a man after only a six hours' strangulation in a moribund condition; and in no other class of cases have I seen more severe shock. The majority of those who die with an unreduced hernia do so from this cause, aided, it may be, by the poisonous action of absorbed ptomaines; and it is shock as much or more than inflammation of the bowel that generally in cases of delay puts the patient in so bad a condition for the performance of an operation. Cut the constriction, and free the bowel or the omentum, and (as Hutchinson showed twenty or more years ago) peritonitis by continuity may be rapidly developed; and no antiseptic operation or after-treatment of the wound can altogether prevent such extension. If the strangulation has lasted so long that the gut or the omentum has become gangrenous, the ordinary depressing effect of local mortification is further added; and occasionally it happens (I have myself twice seen this) that, as the consequence of the tight constriction, persistent paralysis of the engaged part of the bowel is produced; the peristaltic action remaining arrested, the vomiting continuing, and the patient dying just as he would have done if no operation had been performed.

Intercurrent affections will sometimes directly or indirectly cause death. Twice in patients suffering from senile bronchitis I have known a severe paroxysm of coughing force out again the replaced bowel, and the existing lung disease contributed in no small degree to the production of the fatal result. Does not ether inhalation have a decidedly injurious effect upon those subject to chronic cough, asthmatic or bronchitic? Shock, peritonitis, or gangrene, is, in the vast majority of cases, the cause of death, and peritonitis is the only one that can in any manner be attributed to the operation, while each and all are favored by delay.

Wound complications—erysipelas, cellulitis, septicæmia, tetanus—are responsible for but a small fraction of the mortality percentage, and the first three, certainly, can be largely prevented by proper wound-treatment.

Speaking generally, it is not the operation that kills, but the delay in its performance. Of the 33 patients upon whom I have operated, 12 (6 males and 6 females, 36.4 per cent.) recovered, 21 (14 males and 7 females, 63.6 per cent.) died. Of the former, in but 3 had the strangulation existed more than twenty-four hours; of the latter, in but 2 had it lasted less than that length of time; in the remaining 19 its duration having been, in 2, seven days; in 2, over six days; in 1, over four days; in 4, over three days: in 4, over two days; in 4, more than thirty-six hours; and in 2, more than twenty-four hours. Of the 33 herniotomies, 20 were done

certainly rupture the intestine, there would be vastly less crowding and pushing and squeezing done than now, and the death-rate without, and especially with operation, would be greatly lessened.

upon men, 13 upon women; 17 for inguinal ruptures, with 4 recoveries; 15 for femoral, with 8 recoveries; and 1 for umbilical, fatal. The youngest person operated upon was twenty, the oldest eighty-three years of age; the former dying, the latter getting well. Two of the patients were between twenty and thirty years old, 4 between thirty and forty, 13 between forty and fifty, 6 between fifty and sixty, 6 between sixty and seventy, 1 between seventy and eighty, and 1 over eighty. Of those that died, 1 lived thirty-eight days (dying of a low grade of septic fever), 1 fifteen days (dying of tetanus), 1 nine days (dying of pneumonia), 1 five days, 3 less than four days, 3 less than three days, 5 less than two days, and 6 died within twenty-four hours, 2 of them in less than one hour, being *in extremis* at the time of the operation.

In three cases the bowel was gangrenous when exposed, having been strangulated respectively seven, six, and three days. In one case, though the strangulation had lasted but six hours, three bloody stools were passed after the operation, and, on autopsy, much coagulated blood was found in the intestine below the level of the upper constriction, due possibly to injury done during the efforts at reduction made before the man was admitted to the hospital. This was one of the two cases, already referred to, in which there was paralysis of the constricted part of the bowel continuing up to the time of death, two and a half days after the operation was performed. In one case there was congenital absence of the right half of the scrotum, with retention of a much flattened and wasted testis in the inguinal canal; the hernial pouch pushing out toward the iliac spine. In another case the hernia had descended to the right labium, the right ovary being below it in the labium. This is the only case of inguinal hernia in the female among those operated upon.

Three of the herniotomies were for femoral rupture in the male, the sac contents in two being intestine, in the other, omentum.

SUPRAPUBIC CYSTOTOMY FOR SCARCOMA OF THE BLADDER.

By ROBERT F. WEIR, M.D.,
SURGEON TO THE NEW YORK HOSPITAL.

The uncertainty which has attended the removal of vesical growths has been greatly diminishd by the recently revived use of the suprapubic section of the bladder, an operation which has not only been made more safe and easy by the elevation of the bladder from the pelvis by its own and by a rectal dilatation, but the entire surface of the vesical cavity is now placed at the command of the surgeon. For the removal of a calculus the high operation has been resorted to in America not unfrequently, but for the removal of a tumor its employment is yet quite rare. The following case may, therefore, in this light be of interest:

Mr. G. A. T., of a family and residence free from taint of neoplasm, and aged fifty-five, was referred to me by Dr. C. A. Loring, December 24, 1885, for relief of a severe hemorrhage from the bladder, which had then occurred for the first time, though the patient had had frequent micturition for more than two years, and had complained of rectal pains during that time, which he attributed to hemorrhoids. By bimanual examination an increased fulness was felt in the left side of the bladder, but as no anæsthetic was used, this examination was not considered satisfactory. A slight equal enlargement of the prostate existed. Nothing abnormal was found in the clots discharged by the vesical tenesmus. This latter was severe enough to demand large doses of morphia by suppository. The hemorrhage was controlled by plugs of ice frequently passed into the rectum, by ice over the bladder, and by the internal use of ergot and gallic acid in large quantities.

On the 29th of January, 1886, a recurrence of the bleeding took place, but nothing distinctive was found in the clots. After this had stopped, an exploration of the bladder with a sound revealed nothing decisive. Twice during this time the urine became almost jellied from effused fibrin, a condition considered by some pathognomonic of a tumor, but which I have found in a case of cystitis for which perineal cystotomy was done, and in which no tumor existed.

In April a severe hemorrhage occurred, distending the bladder to the umbilicus, and exsanguinating the patient greatly. Ice in the rectum and gallic acid again helped to control the bleeding, and the bladder gradually emptied itself of the clots in the course of two weeks. The patient finally consented to have an examination under ether, to be followed by an operation if a tumor was discovered. I therefore made arrangements to have him placed in a private room in the New York Hospital, and on May 11th anæsthetized him. With the finger of one hand in the rectum, and the other hand firmly pressing above the pubis, a resisting mass was felt to the left of the median line, and the rather forcible use of a sound confirmed the diagnosis, by the resistance offered to its movements to the left. Suprapubic cystotomy was thereupon performed after the following detail:

1. A large rubber dilator, pear-shaped, made by Weiss, of London, was folded into a cone, oiled, passed into rectum and slowly filled with sixteen ounces of warm water, by a bulb syringe. Then through a soft rubber catheter which had been previously passed into the bladder, seven ounces of warm (1:20,000) bichloride solution were injected in a similar manner, when, the catheter having been withdrawn, the penis was firmly compressed at its base by a piece of rubber tubing tied around it. All the lower portion of abdomen was thus caused to bulge forward, and on percussion in the hypogastric region, dulness for nearly two and a half inches above the symphysis was obtained. An incision three and a half inches long in the median line, with its lower end just above the pubes, was made through the skin and subcutaneous fascia, the deeper tissues were torn apart with handle of scalpel, the *linea alba* nicked and divided on a director, and dissection with the scalpel handle to the level of the bladder resumed. Here was rather profuse bleeding from numerous small veins, which required ligature. The bladder was thus

exposed, pierced, and pulled forward by a tenaculum, and opened by a median incision two inches long; two loops of silk string were then passed through the edges of this incision and the abdominal wall on either side, and by use of these and blunt retractors, subsequently introduced into the bladder, the edges of the wound were held apart. Immediately an irregular, reddish, friable tumor, about two inches long, one inch wide, and half an inch in thickness, and situated just posterior to the outlet of the left ureter, came into view, and, so superficial had it become by the rectal pressure that the tumor could readily be made to project outside the bladder by depressing the walls of the incision.

The mass was so soft that it broke down in the attempts to remove it, and considerable oozing of blood thus occurred, promptly arrested, however, by the pressure of a sponge. The attachment of the tumor was three-quarters of an inch in diameter, circular in shape, and with depressed and irregular edges. It was thoroughly and forcibly scraped with a sharp Volkmann's spoon; considerable bleeding also came from the adjacent mucous membrane, which somewhat interfered with the precision of the operation. This was finally checked by pressure and hot sublimate douches (1 : 20,000), and more particularly by the emptying of the rectal dilator, which, it was also noted, immediately changed the level of the ureteral orifices from just behind the symphysis to a point beyond the reach of the finger, part of this depth being from the thickness of the abdominal walls. So complete a view and control of the deeper parts of the bladder was had that no reason was present for the inversion of the patient, as had been suggested by Trendelenburg, for the purpose of drawing the bladder upward. A rubber perforated tube, with a short crossing tube at the bladder end, to hold it *in situ*, was introduced to the bas fond; the edges of the wound were packed with sticky iodoform gauze and a light and loose antiseptic gauze dressing applied, through which the drainage tube ran. The patient was directed to be kept on his side.

May 12. He passed a comfortable night. To the drainage tube another piece of tubing was connected by a curved glass-tube, to prevent kinking, and by this means the urine was conveyed to a receptacle and the patient kept fairly dry. He rests easily on right side, and urine flows freely away. Pulse 100; temperature 99.5°.

27th. Pulse and temperature have been normal since the 13th. To-day the tube was removed from the bladder, having given rise to no irritation. The iodoform gauze was also changed, and the wound dressed with balsam of Peru.

By the 25th, granulation of the wound was fully established, and its edges were strapped together, and he began to pass water through the penis. By June 3d all the urine was passed *per vias naturales*. By June 11th he left the hospital for his home, voiding a clear urine about eight times in the twenty-four hours, free from pain, and gaining flesh and strength, with the wound thoroughly healed.

About the first of July he began to experience difficulty in passing his water by the urethra, and in the course of a week thereafter he had a temporary retention which was relieved by the giving way of the lower end of the cicatrix and the establishment of a small, suprapubic, urinary fistula, which has continued, with occasional closures, and is probably due to a reappearance of obstruction in the natural outlet of the bladder. He was last seen on November 1st, when a decided increase in prostatic fulness on the left side could be felt, which with his emaciation told that recurrence had undoubtedly taken place. He has had no further hemorrhage. The microscopical examination by the pathologist of the hospital, Dr. Peabody, revealed the tumor to be a sarcoma.

Remarks.—The operation in this case showed (1) the difficulty that could arise from wounding the veins immediately external to the bladder, even though a blunt instrument was used in the deeper dissection. It is better, I now think, when a vein is exposed, to pass a double ligature under it, tie it, and then divide it between the ligatures. Also, should the bleeding be free from small vessels, instead of stopping to secure these, and thus disturb the connective tissue in front of the bladder all the more, it would be wiser to open the bladder and relieve the congestion, when the hemorrhage will cease. This was noticed in the present case, and several other surgeons have observed the same fact.

2. In the distention of the rectal balloon, which should be done first, the fluid was pumped in slowly, and as soon as decided resistance was felt, no more was forced in. By fairly distending the bowel and putting less than usual in the bladder, it was believed that the risk which Pousson[1] had called attention to —namely, rupture of the bladder—could be avoided. This observer narrates three cases wherein the rectal and vesical distention had been practised according to the method of Peterson, and in which 200 grammes (less than 7 ounces) of fluid were in each case injected into the bladder, and subsequently, in two of the cases, 300 and 400 grammes (9½ to 14 ounces) respectively were forced into the rectal bag without raising the bladder above the pubis. In two of the cases the operation was proceeded with satisfactorily, and in one of these two the extravasation of fluid anterior to the bladder proved the rupture; in the third case, even after the catheter had evacuated only a few drops of fluid, another quantity was forced into the ruptured bladder, and further procedure abandoned, only a catheter being left *in situ*. The patient died twenty-two hours after, and at the autopsy a rent twelve millimetres long in the median line of the bladder anteriorly was found, which a hypogastric incision would probably have relieved. I was, therefore, unwilling to go as high as Thompson advises in the distention of the bladder, to wit, from 8 to 10 ounces, and halted at 7 ounces, carefully feeling above the pubis to keep watch of the increasing bulging, and trusting rather to the somewhat generous rectal pressure I had created. That this will sufficiently raise the bladder was well seen, even after the vesical wall had been divided and the fluid evacuated.

[1] Pousson, De deux variétés peu connues de rupture de la vessie Rev. de Chirurgie, 1885, p. 873.

Further experience has also lately been recorded by Dittel,[1] who publishes two cases of rupture from overdistention of the bladder. One of these, his own, took place in a boy five years of age, into whose bladder only 100 grammes of water were injected. The operation (epicystotomy) was proceeded with, though it was noticed that no elevation of the bladder had occurred, and a stone removed. The patient died six days later, and the rent was found situated posteriorly and on the left side of the bladder. The second case occurred in the practice of Weinlebred, in a man aged sixty-seven, on whom suprapubic cystotomy was resorted to for the removal of a calculus. 200 grammes of fluid were used in the rectal bag, and then 300 grammes introduced into the bladder; this failing to distend the viscus satisfactorily, 200 grammes more were pumped in with the same negative result. A rupture was suspected and the operation carried out. The bloody fluid found in the prevesical space sustained the diagnosis. The patient died at the end of twenty-four hours. The split in the vesical wall was on the posterior surface and ran circularly forward. Dittel thereupon experimented upon numerous cadavers to ascertain the bursting-point of the bladder with air and with fluids. He found that with air from 1200 c. c. to 3000 c. c. were required; with fluids, in adults, 300 c. c. or more were necessary. Though these demonstrations are less valuable than the results unintentionally obtained in the living subject, they have elicited the interesting surgical fact that in nearly all the cases where the tearing of the bladder resulted from the static pressure of the air injected, it took place in the posterior surface, while in about only one-half the tests the laceration from fluid distention occurred in this more dangerous region. As the reasons for a premature rupture, such as sacculation, cicatrices, and degenerative changes, are not recognizable beforehand, this surgeon further suggests the elevation of the bladder by some instrument introduced per urethram as safer than injection of fluids or air.

A high cystotomy lately reported at the New York Surgical Society, by Dr. Lange, for the removal of a tumor, has, moreover, exhibited the possibility of mishap from the rectal stretching. This surgeon found that the rectum had been partially split by the over-distention. The patient, however, made a satisfactory recovery. Cadge, in a discussion on this subject, quotes a fatal case, in which there was a circular rent in the rectum with a distention produced by 15 ounces of fluid; in this case blood followed the withdrawal of the rectal bag. In another case, Saint Germain mistook the inflated bag in the rectum for the bladder, and incised it. It is not easy to see how this error could occur.

It is evident from the recent reports on this subject,[2] that the subject of rectal distention lacks exactness, and that its employment is yet attended with risk, like the manual distention, to the dangers of which the writer called attention in 1875.[3] A number of surgeons speak of the slight bleeding coming from the rectum after using the distending bags. Some have attributed this to seams or other irregularities on the surface of the rubber bag. Is it not sometimes due to slight rectal lacerations? Individually I cannot help feeling that more care must be used in dilating both rectum and bladder, and that we must not seek to have the bladder raised more than one to one and a half inches above the pubes; this elevation will give ample space, and if more is required, the peritoneum can be carefully and easily peeled upward as far as may be needed. To avoid as far as possible an overdistention of the rectum, not more than ten ounces of fluid need be used, and I have had contrived a rubber bag with fine silk meshes outside, like the middle bag in the Paquelin cautery apparatus, to limit the distention of the contained rubber to a circumference of seven and one-half to eight and one-half inches, which my investigations have shown to be the limit of safe rectal dilatation.

3. No sutures were purposely used, though the temptation is strong to employ them. Van Iterson has sutured the bladder eight times with only one failure, his sutures not going through the mucous membrane, and a soft rubber catheter was retained in the urethra. I have too often seen, after an operation on the urinary passages, the irritation or plugging up of a retained catheter fail in its intended end, to trust to it willingly in a suprapubic cut. The majority of surgeons seem to favor the open treatment of the wound. To close the wound imposes a risk beyond the advantages claimed for it.

4. Should any suppuration occur and be detected of the prevesical tissues, the experience had in the treatment of rupture of the bladder,[1] and its attendant extravasation, must be kept in mind, and drainage be essayed by carrying downward a long dressing forceps behind the pubis, and cutting on its point in the perineum, and by pulling through this track a tube sufficiently large for the easy flushing and draining of the gravitating pus and urine.

[1] Wien. med. Wochenschrift, 1886, Nos. 42–45.

[2] Jacobson, British Medical Journal, October 30, 1886.

[3] On the Dangers of Intrarectal Examinations, Medical Record, March 20, 1875.

A SIMPLE METHOD OF TESTING FOR COLOR-BLINDNESS.

BY HENRY SEWALL,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF MICHIGAN.

The genuine expert no doubt finds little difficulty in estimating, by the use of one of the recognized methods of testing for color-blindness, the color sensibility of persons presented to him. But probably few of those who desire to make such tests have had the advantage of such long and continued practice as does away with the necessity for more or less elaborate reasoning during the experiment itself. Every one who has engaged in such work according to the justly famous method of Professor Holmgren, has recognized that the individuality of the person experimented on offers the greatest difficulty in the way of making the test rapid and accurate. An in-

[1] Rupture of bladder treated successfully by perineal urethrotomy and pelvic drainage, Medical Record, March 29, 1884.

definite number of gradations lead through color-obtuseness down to color-blindness, and the fineness of color-perception in different individuals, determined simply by education, is notoriously of the greatest diversity. It is, therefore, not to be wondered at when, according to the Holmgren method, a skein of worsted is presented to a person under examination, and he is told to pick out all the pieces of a similar color from a bundle of skeins, he should hesitate between the meaning of "color" and "shade," and become still more perplexed if the examiner, in his desire to make matters clear, tries to indicate the difference between "tint" and "hue." All persons untrained in the use of colors whom I have examined for color-blindness have needed a more or less lengthy explanation of terms before understanding exactly what was desired of them.

The method which I venture to propose is a modification of that of Professor Holmgren, and appears to me to be in some respects an improvement, on account of its accuracy and the ease with which it may be applied. The only material employed in the tests is furnished in the folding sample-cards of worsted colors such as are used by dealers in worsteds and embroidery in making their orders for Berlin wools. The wools are fastened to narrow pieces of cardboard, five to fifteen shades of a single color being arranged in regular gradation upon each piece. Each tint or shade is represented by six or eight short strands of worsted set closely side by side, and separated by a blank space of one-fourth of an inch from the next lighter or darker shade. Anyone can easily make such a color-card by winding separately the various shades of any color around a strip of cardboard ten inches by one inch in size, taking care that each shade shall be separated by an open space from the adjacent ones. The woollen threads can be kept in place by tying, or fastening with a drop of mucilage on the reverse side of the slip of cardboard. The slips containing the different colors should be lettered, A, B, etc., and each individual shade should be numbered for the purpose of reference.

The book of samples chiefly used by me contains eighteen columns of colors, each of which is represented by five to fifteen separate tints in graded series. In practice so extensive a collection is not needed, but a single column each of reds, blues, pure greens, grays, pinks, royal purples and violets, is sufficient; to these, however, it is useful to add series of browns and yellows. Ten to fifteen shades of each color should be employed.

In making the color-test, the operator may proceed in the order indicated by Holmgren, investigating first the general color-sense, and afterward the special variety of color-blindness.

The examiner chooses a light green as a test color, and then, pointing the finger at the column of grays, asks the person under examination to pick out a shade which *exactly* resembles the test green. The same comparison is successively made between the green and the purples, reds, and blues. A person afflicted with any form of color-blindness will either declare that the test green is exactly like some shade of the comparison colors or differs from it only in brightness. The operator may now proceed to the second test, and this is really the first step pursued by the author, by choosing a pink, which is physically a combination of blue and red, and, pointing to the column of blues, ask the subject to select a shade which exactly corresponds to the test pink. The same comparison may then be made with the violets, grays, and greens. According to Holmgren,[1] "He who is color-blind by the first test," matching the test green, "and who, upon the second test, selects only purple skeins"—that is, makes no error by the second test of the method here detailed—"is *incompletely color-blind.* He who in the second test," matching the purple, "selects with purple only the blue and violet, or one of them, is *completely red-blind.* He who in the second test selects only green and gray, is *completely green-blind.*" The examiner may then go on and, using red as a test color, find out what saturation of gray, brown, or green exactly corresponds with it.

I have had no experience with the green-blind, but, in the case of red-blind persons who have been examined by me, the rapidity and certainty of this method have left nothing to be desired. In one instance, while still a novice in this kind of experiment, I found it impossible to determine, by the Holmgren method, just the nature of the defect of color-perception in a student who was being examined; but, on adopting the plan here detailed, it took but a few seconds to find the nature and depth, as it were, of his color-blindness.

In the case of feigned color-blindness, the deceit can only be practised successfully in this, as in the original method, when the person examined understands the laws of the defect as well as does the examiner.

Many examiners have had much wider experience than myself in making these tests, but I venture to believe that the plan here proposed has peculiar advantages, because—

1. It leaves nothing to the judgment of the person examined. He is asked simply to select some color which is *exactly* like one other. The large number of shades of color, and the simplicity of their arrangement, allows of this being done definitely and quickly. No color-name is used, and thus all confusion of meaning is avoided.

2. The method allows of a scientific accuracy equalled only by that of some others of a much more complicated character; the color-blind matches two different colors which *exactly* resemble each other, thus giving a clew to the completeness of the defect.

3. The time and worry of the examination are reduced to a minimum. An ignorant person might be taught in a few minutes how to conduct the test, or be trusted to depend on printed instructions, as "Does any number of column C look *exactly* like No. 3 of column A?" etc.

The whole number of color-slips may be fastened in a folding cardboard small enough to be conveniently carried in the pocket.

[1] Smithsonian Report, 1877, p. 186.

HOSPITAL NOTES.

The Treatment of Rheumatism in the Philadelphia Hospitals.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

Dr. Osler employs in mild cases, with only one or two joints involved and the temperature not above 102° F., the citrate of potash in ʒss doses every four hours. If there is much pain and the patient is restless, Dover's powder grs. x at night. In more severe attacks, with polyarthritis, and fever above 103°, he orders salicylate of sodium grs. xv every two hours, with a similar quantity of the citrate of potash. The important influence of the salicylate is believed to be in the reduction of the pain and fever. It is not thought to have much influence in lessening the duration of the disease; and, on the other hand, when pushed for many days and in large doses, it is thought directly to favor the occurrence of relapse. Hence, as soon as the pain is relieved, the amount of the salt is reduced, and it is stopped as soon as possible. It does not probably influence, one way or the other, the occurrence of endocarditis. When the temperature is above 103.5° antipyrin, grs. xx, is ordered. With fever of 105° the cold pack is employed. Lemonade and carbonated waters are allowed freely. An unstimulating liquid diet is given. Blankets are preferred for the bedding of the patient. Special care is enjoined in changing the clothing, and a wad of cotton-wool is placed over the front of the chest. The joints are wrapped in cotton-wool, or, when very painful, in spongiopiline, or flannel, soaked in Fuller's lotion (hot) (Liquor Opii Sedativus, ʒj; Potass. Bicarb., ʒiv; Glycerin., ʒij; Aquæ, ʒix). If the salicylate and the local application fail, as they sometimes do, to relieve pain, opium is freely given. During convalescence iron and tonic doses of quinine are ordered.

JEFFERSON COLLEGE HOSPITAL.

Dr. DaCosta treats his cases of acute rheumatic fever, as a rule, with salicylic acid, about a drachm in twenty-four hours; he does this especially in the cases of active, frank character, in which the joint affection is decided. Where marked cardiac complications exist, he greatly prefers the alkaline plan of treatment; indeed, has little faith in the use of salicylic acid either to prevent cardiac complications or to remove them. Nor does he, in any case, continue salicylic acid or the salicylates if no impression is made on the rheumatic malady in three or four days. When the remedy does good at all, his experience is that it does good quickly.

In cases of acute or subacute muscular rheumatism, or in subacute articular rheumatism with much pain and only moderate swelling of the joints, he often employs bromide of ammonium, or, if this fail, nitrate of potassium. He uses opium sparingly, and generally confines it to a moderate dose or two of Dover's powder, given at night.

He strongly insists, no matter what plan of treatment be adopted, on the addition of quinine, from twelve to sixteen grains daily, as soon as the more active symptoms have subsided, believing that thereby the patient's strength is sustained and relapses prevented.

From tincture of chloride of iron he has seen no good, except in pyæmic rheumatism or in kindred forms of rheumatism.

Locally, he uses little, enveloping the swollen joints, if very painful, in a thin layer of cotton-wool; where the joints are very much swollen he envelops them in cloths wrung out in a strong solution of nitrate of potassium, with morphia added.

The diet is always bland and unstimulating, chiefly milk, farinaceous substances, and very moderate amounts of broths, eggs, and fish. Alcohol is not given except in the so-called "typhoid cases," in which also high temperature is generally found.

Dr. Roberts Bartholow finds that the cases which come under his observation may be divided into three types: The robust nervo-muscular subject, often having a distinctly hereditary tendency to the occurrence of rheumatic inflammation; the obese, beer-drinking subject; and the pale, anæmic, feeble subject, most frequently female, living under unfavorable hygienic conditions, and leading a closely sedentary life.

His choice of remedies for these three classes of rheumatic subjects, when the seizure has actually occurred, is confined to the salicyl compounds for the nervo-muscular type, to alkalies and tincture of iron in the obese type, and to tincture of iron in the anæmic. The recent additions to our knowledge of the good effects of antipyrin in acute rheumatism incline him to its use in place of salicin and salicylic acid, and for the hyperpyrexia in any of the cases. Although he cannot agree with those enthusiasts who regard antipyrin as a specific in rheumatism, he cannot overlook the good effects obtained from it in appropriate cases—especially in the neuro-muscular group. As the disease manifests a tendency to relapse the earlier and the more abruptly defervescence and cessation of pain take place, he keeps up the use of the remedies for several days after all morbid manifestations have ceased. With these remedies he combines, *pro re nata*, quinine, morphine, and, more particularly, blisters in the neighborhood of the affected joints.

In the obese, beer-drinking type of rheumatics, the use of alkalies, or the combined alkaline and quinine treatment as advocated by Fuller, appears to him to be most efficacious during the existence of the acuter manifestations. When these have distinctly subsided, the tincture of iron freely administered becomes the most important remedy, and will do more than any other to prevent recurrences, which are particularly apt to take place in this type. Furthermore, the acute rheumatism of these obese subjects manifests a certain sluggishness of disposition, so to speak, and slowly glides into the subacute and chronic forms. Until he learned the value of tincture of iron in these cases, he had to observe this tendency of the malady only too often.

For the third group of rheumatic cases, he uses the tincture of iron with excellent results. The anæmia, the depression of the bodily forces, and the exquisite sensibility characteristic of this type, are conditions generally improved by iron; but as no other preparation manifests the same power in acute rheumatism, there must be a special action due to the hydrochloric acid in the combination. This view is the more probable, since the mineral acids have themselves been used successfully in the treatment of this disease.

The blister treatment, which has alone accomplished excellent results, may well be combined with any other special plan.

Whatever mode of treatment has been pursued, he finds it necessary to keep it up, somewhat modified as to quantity, for several days after the apparent cessation of the systemic and local disturbance.

PENNSYLVANIA HOSPITAL.

Dr. Morris Longstreth, in cases of decided articular manifestations and high temperature, orders salicylic acid to be given in ten grain doses every hour until six doses are given—*i. e.*, a drachm every twenty-four hours. The salicylic acid is given with the object of reducing the temperature, and the quantity and frequency of the dose are proportioned carefully to the end to be attained. In the large majority of cases it is successful. The temperature, and with it the frequency of the heart's action, diminishes. Cardiac complications, endo- and peri-carditis, do not seem to contraindicate its employment or its continued use. Occasional cases present themselves in which great depression of the heart follows the employment of the drug in large doses, even without evident inflammatory cardiac complications. In such cases, other medication must be employed; and occasionally restoratives have been required to overcome its effects. Usually its use is continued for one or more days after the subsidence of the temperature, in much reduced doses and at longer intervals.

In cases in which salicylic acid fails of its usual effect, or in cases with great anæmia or previous debility, salicin has been found very useful. It has been given in fifteen grain doses, four times a day. Its administration in smaller doses is often continued during convalescence, either alone or in connection with iron or other tonics.

The alkaline treatment Dr. Longstreth resorts to less frequently. When employed, bicarbonate and citrate of potash, in equal portions, are given in divided doses to the amount of one ounce daily.

Quinine and tr. ferri chloridi seem to be demanded during convalescence in nearly all the cases. The disordered digestive functions, evidenced by coated tongue and sluggish bowels, seem to be most favorably and promptly aided by the administration of small doses of calomel, gr. $\frac{1}{12}$, with bicarbonate of soda, gr. iij, given at frequent intervals during one or two days.

Locally, to the affected joints, three modes of treatment have been found of service. Joints hot and tense are covered with cloths wet with lead-water and laudanum, equal parts, and enveloped with waxed paper or gutta-percha sheeting. In some cases, the local application of a saturated solution of bicarbonate of soda is useful; sometimes the impermeable sheeting is omitted from the dressing—coolness from evaporation being more comforting than the heat. In other cases, the joints are enveloped in cotton, with or without the covering.

Cold-water sponging or packing is employed in cases of high temperature with delirium. Antipyrin has been employed in some of these cases, but without good results. Morphia or opium is always used as required.

PHILADELPHIA HOSPITAL.

Dr. James Tyson uses both salicylic acid and salicylate of sodium, but recently has confined himself rather more to the former. He gives it preferably in the form of a compressed five grain pill, of which two are ordered every two hours until the symptoms yield. This is generally within twelve hours, and almost always within twenty-four. After the pain has decidedly subsided he diminishes the dose one-half, or increases the interval to four hours. If the administration is cautiously continued for a week or ten days, he finds that it is comparatively seldom that relapses occur. Sequelæ and complications are less frequent by this than by the older methods of treatment. It is comparatively seldom that anodynes are required as adjuncts to relieve the pain, but when they are, the hypodermatic use of morphia is promptly efficient.

In giving the salicylate of sodium, he prescribes ten to fifteen grains every two hours, or half as much every hour until relief is obtained. Its sickening taste in solution is a great drawback to its use, but it, too, may be given in five grain compressed pills, although the larger bulk makes this method of administration inconvenient.

When salicylic acid or its salts fail, he finds that flying blisters to the painful joints are the next most efficient measure, and their effect upon the pain is usually very prompt.

Dyscrasic cases are, of course, treated with iron, quinine, and an abundance of nourishing food, and flannel garments worn next to the skin.

In muscular rheumatism salicylic acid is seldom efficient, although Dr. Tyson often uses it with results which lead him to believe that it is not totally without effect. By far the most satisfactory measure is dry heat, applied most conveniently by the hot-water bag.

In the treatment of chronic rheumatism Dr. Tyson has much more confidence in the use of local measures and manipulation. Salicylic acid is also sometimes useful, but the effect is more frequently temporary.

Dyscrasic conditions are treated with cod-liver oil and iron, which alone are sometimes curative. Counter-irritation by blisters and strong liniments are sometimes useful adjuncts, but are in no degree equal to manipulation.

Dr. J. C. Wilson has, during the past three years, used in acute rheumatism a mixed treatment, consisting of sodium salicylate in combination with sodium bicarbonate or sodium acetate. The formula commonly employed is as follows:

℞.—Sodii salicylatis . . . . gr. xv.
Sodii bicarbonatis . . . gr. xxx.
Aquæ menth. pip. . . . ℥ss.—M.
To be taken every third or fourth hour.

This dose is increased or diminished in accordance with the intensity of the pyrexia, the acuteness of the joint pains, and the condition of the heart, in individual cases. After the reaction of the urine becomes distinctly alkaline under this treatment, the sodium bicarbonate is stopped, and the salicylate continued alone at gradually increasing intervals until the pains and fever have

wholly ceased. The administration of iron then follows, usually in the form of Basham's mixture, the mistura ferri et ammonii acetatis, U. S. P.

Dr. Wilson regards this method as quite equal to the treatment by salicylic acid, the sodium salicylate alone or by salicin, as regards the rapidity with which the pain is relieved and the fever controlled, and as much superior to them in the diminished danger of producing the toxic effects of large doses of the salicylates, especially cardiac depression, epistaxis, tinnitus, headache, and maniacal excitement—phenomena which are very seldom observed, if we except slight ringing in the ears, under this plan of treatment.

The diet consists chiefly of milk; light broths are, however, occasionally permitted, to which, with beginning convalescence, are added bread, rice, custards, etc. Alcohol in any form or dose is scarcely ever given, except in emergencies, and forms no part of the treatment even during convalescence.

Serious heart complications developed under observation in the wards are comparatively infrequent, and relapses not very common.

In view of the frequency of recognizable cardiac lesions, especially in young subjects, and of the probability that some degree of implication of the valvular endocardium, not sufficient to manifest itself by satisfactory auscultatory signs, may be present in many cases, in which murmurs are not present, the patients, when practicable, are kept in bed for ten days or two weeks after the complete subsidence of the acute symptoms. The valves of the heart are thus saved wear and tear, the danger of relapse is greatly lessened, and the rebuilding of the blood hastened.

If, despite the steady use of iron in full doses, the anæmia persists, arsenic is given in small but gradually increasing doses, usually with good effect.

MEDICAL PROGRESS.

Rheumatism.—From an extensive paper by Immermann the following points of interest are abstracted:

The couplet,

> "What we cannot well divine,
> As rheumatism we define,"

expresses the multitude of varying conditions called rheumatic.

Acute joint rheumatism the author considers not simply the esult of cold but of infection, and the apparently specific action of sodium salicylate, the author thinks, points to a definite infectious cause which often manifests itself in *masked* rheumatism. Many cases occur which do not include in their symptoms the cardinal points of acute rheumatism, fever, joint-pains, and heart affection, which, in other parts of the body and with other symptoms, are caused by the same infection, as muscular pains, neuralgias, pleuritis, and chorea.

Again, one of the classic symptoms may alone be present, and an atypical picture be given; in these cases a previous rheumatic history will often be elicited. During an epidemic of rheumatism cases of acute endocarditis often occur when the failure of joint affections would not point to rheumatic infection.

Valvular lesions, so often found, the author considers the results of previous rheumatism, which attacked the endocardium but spared the joints; sero-fibrinous pericarditis, with fever, but without joint affections, is also due to rheumatism.

Neuralgic rheumatism and rheumatic neuralgia are masked forms; the latter is said to be the clinical equivalent of acute joint rheumatism. For these the writer has found not only sodium salicylate but also antipyrin a specific. As an illustration of its action, and as showing another class of these masked cases, the following is related:

A physician was taken with high fever and painful contractures of the muscles of the neck. Cerebro-spinal meningitis was feared, although it was not epidemic in the place at the time. Rheumatism, however, was epidemic, and, under the use of antipyrin, the patient speedily recovered.

The writer gives the following grounds for a diagnosis of rheumatism:

1. Individual liability to rheumatism: the fact that a patient has once had rheumatism makes a pericarditis, etc., occurring in such a patient undoubtedly of rheumatic origin.

2. The tendency of rheumatism to localize itself, next to the joints, about the heart and pericardium; a valvular lesion, not referable to atheroma, is to be suspected as rheumatic; a subsequent pericarditis, or endocarditis, or joint affection would confirm the diagnosis.

3. The tendency of acute rheumatism to epidemics: cases which would not, ordinarily, be suspected as such, would, in an epidemic, be so diagnosticated.

4. The specific action of the salicylate of soda and of antipyrin.

As *rheumatoid* affections the author mentions gonorrhœal and scarlatinal rheumatism; also, bronchiectasis and rheumatoid purpura.

In nervous diseases are rheumatic tetanus, Landry's paralysis, and poliomyelitis acuta anterior ascendens adultorem; also, polyneuritis; while beri-beri, or Kakké, the author thinks, are not of rheumatic origin.

The potency of cold in causing joint inflammations is admitted; rheumatism is so induced. The title *refrigeratory* is, however, suggested as much more proper for all the neuralgias and results of colds.—*Deutsche medicinische Wochenschrift*, October 14, 1886.

Boracic Acid as a Local Anæsthetic.—Dr. A. C. Ewing narrates the following case in *American Practitioner and News* of November 13, 1886:

George S., a railroad employé, came to my office October 19, 1886, with a deep suppurating wound in the palm of the left hand, having two weeks previously received the injury by being thrown forcibly against a moderately sharp instrument, which cut, or rather tore its way through to the bones. He was suffering excruciating pain; his hand being in a semiflexed position from involuntary, and, to some extent, voluntary contraction. Upon taking hold of the hand and making but a slight effort to straighten his fingers, he fairly cried out from pain. Taking about thirty grains of powdered boracic acid and dissolving it in half an ounce of water, I saturated a pad of absorbent lint in the solution and applied it directly to the wound, securing it by means of a splint and bandage. I directed him to return on the next day. In the morning I was agreeably surprised to find that he had not suffered in the least during the night. I took

off the splint and found, by using considerable force, that I could almost entirely overcome the contracted tendons and fascia, the wound gaping open as I did so, but without having given him the least inconvenience; in fact, he himself pulled open the wound to "see how deep" it was, squeezing out some pent-up pus, and in doing so felt no more pain than if he were squeezing healthy tissue. I am still using the same dressing once daily, because of its excellent antiseptic qualities, and the wound is healing rapidly by granulation.

TREATMENT OF METRORRHAGIA.—DOLÉRIS commends the following method of treatment in metrorrhagia:

Commence with friction, morning and evening, over the lumbar region, with

Spirits of camphor	120 grammes.
Ether	30 "
Chloroform	15 "

Internally.

Tincture cinnamon	15 grammes.

Daily,

And, per vaginam, the following application:

Glycerine	350 grammes.
Acid tannic	30 "
Tinct. iodine	4 "

Also general hydrotherapy, *not* used about the pelvis; douche in intermittent jets, fifteen seconds in duration. The vaginal application may be modified as follows:

Glycerine	350 grammes.
Laudanum (Sydenham's)	4 "
Extract belladonna	2 "

Not to be used when ulceration of the cervix exists.

Counter-irritants over the spine in the lumbar region; the cold douche, and should the indication arise, curetting the uterus, or sponging its interior.

In the case of exudates and uterine fibromas, digitalis may be used as follows:

Glycerine	120 grammes.
Extract of digitalis	4 "
Alcohol to dissolve	q. s.

Dissolve the extract in alcohol, and shake with the glycerine; not to be used if ulcerated cervix be present.

Also.

Glyceride of starch	120 grammes.
Extract of digitalis	4 "
Alcohol	q. s.

—*Gazette de Gynécologie*, November, 1886.

THERAPEUTIC ACTION OF ETHOXYCAFFEINE.—According to CHABAT, the following formula in the hospital experiments of Cochin and Dujardin-Beaumetz has yielded the best results:

Ethoxycaffeine	25 centigrammes.
Salicylate of soda	25 "
Hydrochlorate of cocaine	10 "
Linden water	60 grammes.
Syrup of maiden hair	20 "

The addition of the soda salicylate facilitates the solution of the salt of caffeine; the cocaine prevents gastric disturbances. A gramme of the drug in question in the above combination, taken in five doses, relieved an anæmic patient suffering from herpes. Three cases of obstinate migraine were cured by half a gramme in five doses. Chabat considers with Filehne that the drug is of value in migraine, and expects more precise indications for its use from further researches.—*L'Union Médicale*, Sept. 28, 1886.

THE POISON OF CHOLERA is shown by CANTANI to be derived either from ptomaines, from the secretion of Koch's bacilli, or from the bacilli themselves. Experiments show that the rapidly developed, dead and absorbed bacilli constitute the cholera poison. Therapeutic indications are (1) to hinder the increase of bacilli, in which tannic acid has proved useful by intestinal injections; (2) promotion of elimination of poison, by hypodermatic use of eliminative and stimulant drugs. In general the writer favors hot intestinal injections as the best treatment.—*Deutsche medicinische Wochenschrift*, Oct. 14, 1886.

THE AMMONIA TREATMENT OF FIBRINOUS CONCRETIONS.—In the October number of *The Asclepiad*, DR. B. W. RICHARDSON, after detailing a number of cases in point, formulates these rules for the exhibition of ammonia:

1. The ammonia is best administered either in the form of the strong aqueous solution, or of the saturated alcoholic solution. More than five minims at a time cannot easily be swallowed. The best menstruum for the ammonia is milk, and if the milk be chilled by ice, the patient takes the mixture with great facility.

2. The ammonia must be relied upon exclusively. Sedatives of all kinds are to be avoided as fraught with danger. Wines and spirits are most injurious; they produce a danger of movement of the fibrinous mass, they excite, and, in time, exhaust the heart.

3. The diet should be, as nearly as possible, of pure milk, with an occasional change to gravy soup or minced codfish, with bread or toast. Other solid substances do not digest readily; they create flatulency, and cause a restless movement of the body, which is detrimental.

4. With the medicinal and dietetic treatment thus enjoined, there must be combined the most perfect rest of the body in one position. The secret of success consists in producing solution of the obstructing mass while it lies sufficiently out of the course of the circulation. If it loosen from its hold and be carried into the pulmonary artery while it remains semi-solid, however small it may be, it will be a source of fatal danger.

5. Together with this physical rest every mental rest, every mental comfort, must be supplied. The patient must be harassed with no unnecessary fears, agitated by no unnecessary comments. Much of the success of the treatment depends on the gentle firmness with which the practitioner enforces that the greatest advantage is secured by absolute repose of the mind as well as the body.

6. When the secondary changes indicate the solution of the fibrin, and its distribution over the vascular system, the administration of the ammonia is not to be withdrawn. The alkali is indeed as important, under these circumstances, as in those which precede them.

7. The conditions warranting the withdrawal of the solvent are: entire subsidence of the difficulty of breath-

ing; relief of the tension of the veins; returning fulness of the pulse; normal temperature; restored mental and physical power; and steadiness of motion of the heart, with perfect clearness of the sounds. When these favorable conditions are proclaimed, it is fair to infer that no obstruction is present in the circulatory canals, and that the ammonia may be withdrawn.

But inasmuch as the ammonia, however far it may, with reason, be carried, does no injury that is not quickly recovered from, there exists no cause for hurry in withdrawing it. It may, therefore, be continued in less frequent doses for a few days, when every danger appears to have passed away.

Tannin in Inflammations of the Serous and Mucous Membranes.—Dubané, in clinical observations, has found that tannin, given by the gastro-intestinal tract, diminishes the violence of the symptoms in severe acute inflammations of the serous membranes; he has obtained success also in chronic pleurisy and localized peritonitis.

Dubané has used tannin in intestinal and bronchial inflammations and pulmonary congestions; he thinks, with Bichat, that the drug acts upon the epithelial elements themselves. The author prefers tannin prepared with ether, and gives daily doses of twenty or thirty centigrammes up to ten or twelve grammes, without ill effect. He has used tannin in purulent pleurisy, pelvic peritonitis, perityphlitis, puerperal peritonitis, cerebro-spinal meningitis, double pneumonia, and cerebral rheumatism, with a mortality, including cases of all grades and severity, of thirty-one and one-fourth per cent.—*L'Union Médicale*, September 30, 1886.

Dyslexia.—Dyslexia, as observed by Berlin, in six cases consists in the impossibility of speaking more than three, four, or five words consecutively. Patients read these words correctly, in whatever characters printed, but they are incapable of continuing to speak. Such patients have no other trouble with speech; they pronounce well words spoken in their presence, and are perfectly intelligent. Dyslexia has nothing in common with the visual heaviness of ophthalmic cases, for it accompanies no disease of the eyes; it is an incomplete and isolated verbal blindness.

It generally appears suddenly with various cerebral symptoms. In four autopsies lesions of the left cerebral hemisphere were found; in one case a softening of the gray substance of the lower portion of the parietal lobe; in others the centre of softening was not clearly defined. These changes were accompanied by extensive alterations in the bloodvessels.

Dyslexia will be, according to the author, an interesting clinical sign in diagnosis and prognosis, indicating a grave cerebral lesion occurring shortly before death.—*Archives Générales de Médecine*, November, 1886.

Cocaine in Obstinate Vomiting of Pregnancy.—Fraipont, in a paper thus entitled, presents the following points of interest:

Weiss, in 1884, gave teaspoonful doses every half hour of hydrochlorate of cocaine, 15 centigrammes to 150 grammes of water.

Engelmann and Holtz used a solution of from 3 to 10 parts in 100, and gave from 10 to 30 drops daily.

M. Bois has used an ointment, 1 centigramme of hydrochlorate cocaine to 50 grammes of vaseline, applied morning and night to the cervix uteri.

M. Fraipont prefers the hypodermatic method, and injects in the epigastric region the contents of Pravaz's syringe of a solution of 4 to 100. This treatment has cured nausea following the use of chloroform, and obstinate nausea following excision of portions of the cervix uteri.

The author prefers the exhibition of cocaine by the mouth when it is desired to allay the nervous irritation of the stomach. Walls's applications to the cervix seem indicated only when the stomach will not tolerate the drug.—*L'Union Médicale*, Oct. 2, 1886.

Treatment of Trigeminal Neuralgia.—Gussenbauer recognizes a large class of these neuralgias dependent on no direct irritant, but reflex in character. Such are neuralgias following sexual diseases, malaria, and tobacco poisoning. Especially has he observed these cases as a result of habitual constipation; in forty-five cases of neuralgia, thirty-three were of the trigeminus, on only four were operations made, the remainder were cured by cold water enemata and hydrotherapy. Cases generally recovered in one or two weeks, although they sometimes resisted treatment for five or six weeks.—*Centralblatt für Chirurgie*, October 16, 1886.

Herpes and Bright's Disease.—After discussing the correlation of the activities of the skin and kidneys, Séjournet questions various theories regarding an albuminuric diathesis, and concludes as follows:

1. Herpetism, a chronic tendency to herpes, may be defined as an arthritic diathesis.

2. Sufferers from chronic nephritis possess this diathesis, and the author believes that the cause for albuminuria and structural kidney changes, is generally to be found in herpetism.

3. By considering Bright's disease as dependent upon a diathesis, the writer thinks he has explained many obscurities in pathogenesis and symptomatology.—*Gazette Médicale de Paris*, November 23, 1886.

The Treatment of Periuterine Phlegmasia, as pursued by Gallard, is as follows: 1. Daily tepid sitz baths and injection of decoction of the leaves of the night-shade, hyoscyamus, belladonna, and poppy.

2. Linseed meal poultices over the abdomen, laudanum mixed with the meal.

3. Purgation once or twice weekly, with castor oil or soda sulphate.

4. At night, chloral hydrate, to insure sleep. Absolute rest during menstruation.—*L'Union Médicale*, October 26, 1886.

Quillaja Saponaria.—In July last Kobert, of Strassburg, recommended this drug as a remarkable adjuvant to seneca root. Merkel, in Nüremberg, has used saponaria extensively, giving to adults a teaspoonful of a decoction made with 5 parts of the drug to 180 of water and 20 of syrup, repeated hourly; to children, a teaspoonful, 3 parts to the same proportion of water and syrup. In profuse, and also in foul expectoration, the drug has given the best possible results without unpleasant after-effects; it is also inexpensive.—*Medicinisch-Chirurgisches Central-Blatt*, August 13, 1886.

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INTUBATION OF THE LARYNX AND TRACHEA IN CROUP.

THAT intubation of the laryngo-tracheal canal, as performed in the ingenious method devised and practised by Dr. Joseph O'Dwyer, of New York, will render tracheotomy unnecessary in many cases of croup which, in all probability, would terminate in suffocation without the one procedure or the other, there is no reason to doubt. This opinion does not imply that intubation is competent to supersede tracheotomy in all cases of croup requiring surgical interference. No such claim has been made by Dr. O'Dwyer. The ultimate object of the procedure is to maintain an open passage for the currents of respiration during the period in which occlusion is imminent from accumulations of false membrane, or from intumescence, or from both; and to do so without exposing the patient to certain additional risks inseparable from the operation of tracheotomy and its consequences.

So long as it remains unoccluded, the presence of the tube in the air-passage insures the patient's safety from suffocation. Not so, however, should membrane be pushed down ahead of the tube. Results of this kind were reported in the course of a discussion on "Intubation" before the Chicago Medical Society, June 21, 1886. Similar occurrences have taken place during introduction of the ordinary canula after tracheotomy; and hence, the very important caution in tracheotomy for croup, to search for false membrane as for any other foreign body, and to remove it before placing the canula in position. Should such plugging with membrane accompany intubation, and relief to respiration fail to follow withdrawal of the tube, immediate tracheotomy would be requisite, with far less hope of success than if it had been done in the first instance.

In additional support of this argument we may relate the experience of a well-known practitioner, who several years ago was called to an urgent case of diphtheritic croup, in which he desired to perform tracheotomy, but was forbidden. As he was leaving the bedroom the suffocating child was struggling in the lap of its mother, who cried piteously, "Doctor! doctor! Surely you're not going without doing something more for us!" Tracheotomy was again proposed, and again refused. Turning to his assistant, the physician said: "Suppose we try catheterization. It is not likely to succeed, but we can make the attempt." The tip of a flexible catheter was then cut off square, and the instrument was introduced, without difficulty, through the mouth. Hardly had it penetrated into the larynx when the child became asphyxiated and black in the face. The trachea was at once incised in a single movement, forceps introduced, and a mass of membrane withdrawn, all within ninety seconds, as timed by the assistant. Still the child did not breathe. The catheter was then introduced through the incision, and the thorax was inflated by the assistant's breath; the thorax was compressed to expel this air, and then artificial respiration was performed in the ordinary manner, with resuscitation of the patient in a few minutes; all with the child in its mother's lap. A canula was inserted, and the child was left breathing comfortably. It died on the day following.

When such crowding of membrane may occlude the relatively large calibre of the ordinary canula, or of a catheter, how much more likely to occlude the much smaller calibre of the intubation tube? With intubation no attempt can be made to remove false membrane. Reliance is placed on the expulsive force of cough to drive it through the tube. This expulsive effort is much stronger than it is after tracheotomy; and, therefore, competent to expel delicate shreds, and sometimes thick ones. Should shreds of membrane plug the tube, then, it is contended, the tube will be coughed out. But suppose the child is unable to cough the tube out? If no skilled attendant be present to withdraw the tube at the critical moment, the child will almost certainly suffocate. Withdrawal of the tube is said to be far more difficult than its introduction. The danger here, then, is far greater than after a tracheotomy. Professional supervision of the patient is even more necessary. Occlusion of the tube with inspissated mucus and pus is not so likely to occur as after tracheotomy, because the inspired air has its full complement of heat and moisture.

From a scrutiny of the reports of intubation in croup it may be concluded that intubation will save

many lives in cases in which tracheotomy would not be permitted; that it will save many a patient from the need for tracheotomy, and that it will probably sacrifice a few lives which might have a better chance for preservation under tracheotomy. Hence the inference that intubation should be practised early in cases of laryngeal obstruction in croup, in the hope that tracheotomy may be avoided. Should subsequent tracheotomy become requisite, the tube in position will furnish a permeable obturator which, as found by Professor Jennings, of Detroit, will greatly facilitate the performance of the operation.

One objection urged against intubation is the difficulty in nourishing the patient; fluid food and sometimes semi-solid food entering the tube and the air-passage. This is probably due only to failure in occlusive depression of the epiglottis in deglutition, owing to the position of the head of the tube upon the ventricular bands. It is hardly to be doubted that Dr. O'Dwyer's ingenuity will eventually overcome this mechanical difficulty as it has overcome other difficulties. In view of the fact that objects relatively larger than the head of the intubation-tube have occasionally passed the glottis, the question arises whether the intubation-tube might not occasionally slip through. Thus far no accident of this kind has been noted. The shape of the instrument and its proportions have been carefully designed to prevent it. In conclusion, the modesty of Dr. O'Dwyer is to be commended in the character of his announcements of an invaluable addition to the resources of mechanical therapeutics.

HOT WATER AS A HEMOSTATIC IN OBSTETRIC AND GYNECOLOGICAL PRACTICE.

The value of hot-water injections in menorrhagia was proved many years ago by Trousseau, and for their general use in the diseases of women we are indebted especially to Emmet. Parvin, in 1876, called attention to the use of hot water in arresting hemorrhage from ruptured adhesions in ovariotomy. Courty first applied this agent as a hemostatic in plastic operations upon the external genitals and the vagina. The late Albert H. Smith was one of the first, if not the first, to advocate intrauterine injections of hot water in the treatment of post-partum hemorrhage. Yet it is probable that the value of hot water is not fully recognized by the profession, nor do all seem to know at what temperature the application should be made.

Within a few years one of the most distinguished of German obstetricians has asserted that relaxation of the bloodvessels was the remote consequence of hot-water injections, though contraction occurred at first. A very useful and timely contribution to the subject has recently been made by R. Milne Murray, in the *Edinburgh Medical Journal*. He studied, experimentally, the effects of water at different temperatures, and found that, at 110° to 120° Fahr., it constricts bloodvessels and arrests hemorrhage from small arteries; at a temperature of from 60° to 100°, it dilates small vessels and promotes hemorrhage; and at a temperature of from 30° to 50° it checks hemorrhage by constricting the bloodvessels, but this only temporarily.

In regard to its therapeutic application in inflammations, Murray claims that it is evident that in water at 120° Fahr. we have an agent of immense power in controlling the local circulation in an organ, provided we can bring the water to bear directly on the part. Accordingly, a stream of hot water injected into the vagina cannot fail to affect, in a very direct way, the circulation in the uterus. The smaller bloodvessels will respond in such a manner that their calibre becomes narrowed under the stimulating effect, the abnormal blood supply will, to a large extent, be cut off, and the resulting phenomena of inflammation checked.

Undoubtedly hot-water vaginal injections are useful in some cases of pelvic inflammation, but to claim for this treatment constant success and constant applicability is, we think, an error. Patients are met with in whom great discomfort follows its employment, when it should be discontinued.

In considering the use of hot water in obstetric practice, Murray divides the cases into those in which the contents of the uterus have not been discharged, and those of actual or threatened post-partum hemorrhage, the placenta having been expelled. He states, in referring to the first class, that in all cases in which the abortion is inevitable, hemorrhage going on, and the os dilating, he adopts hot-water injections as a routine practice. He regards the agent as being most valuable in those cases in which hemorrhage is occurring or is imminent after the contents of the uterus have been expelled, and that organ remains flabby and relaxed, Among the benefits claimed for hot water thus used are rapidity of action, duration of the tonus produced, and the absence of vascular reaction, and of exhaustion.

This agent in the treatment of post-partum hemorrhage certainly deserves all the commendation which it has received.

CHOLECYSTOTOMY.

Among the noteworthy papers read in the Surgical Section of the Brighton meeting of the British Medical Association is one by Lawson Tait, on the "Surgical Treatment of Diseases of the Liver," the full text of which may be found in the *British Medical Journal* for November 13th. In it are tabulated fifty operations, which include seven exploratory operations, with one death; thirteen hepatotomies

for cysts, all of which recovered; and thirty cholecystotomies, with one fatal issue from cholæmia. In two of the cases of removal of gall-stones, although the primary result was successful, the patients died subsequently, in consequence of the progress of carcinoma of the liver, respectively, in two and four months.

Not only is the success of Mr. Tait in cholecystotomy extraordinary, but the series of cases indicates great precision in diagnosticating gall-stones, there having been only four in which a mistake was made, a distended gall-bladder being present in three, and cholæmia from carcinoma in one.

In connection with the diagnosis of gall-stones, it is dogmatically asserted, in opposition to the generally received opinion, that intense jaundice is not only not a symptom, but that it is conspicuous by its absence. When present, Mr. Tait shows that it depends upon coexisting carcinoma, and as his experience is extensive, we are forced to conclude that he is correct in his positive assertion. Indeed, it is supported by a case from the practice of Mr. Haslem, narrated on page 925 of the same journal, in which jaundice being present, and over two hundred concretions having been removed, on death, two months subsequently, the liver was found to be cancerous. Hence, the absence of jaundice is of great importance from the standpoint, not only of diagnosis, but also of surgical interference.

That these cholecystotomies "establish beyond dispute that the operation, when properly performed, is as devoid of risk as any surgical proceeding possibly can be," is unquestionably true of the procedure in the hands of Tait. As other surgeons, however, have practised it in at least forty-two cases, of which we have a record, with eleven deaths, four being from hemorrhage, three from collapse, three from peritonitis, and one from suppression of urine, thereby affording a mortality of 26.19 per cent., it must be regarded as an eminently risky procedure, nearly as fatal, indeed, as cholecystectomy. Thus, of eleven cases of the latter operation, two, or 18.18 per cent., died, while of the seventy-two cases of incision of the gall-bladder, from the practice of Tait and other operators, twelve, or 16.66 per cent., perished

In connection with the operation of cholecystotomy, we may refer to a most interesting case of hepatotomy for gall stones, recorded by Knowsley Thornton in the periodical above quoted. On cutting down upon what appeared to be the distended gall bladder, the concretions could be felt in the substance of the liver, the gall-bladder, empty and atrophied, but otherwise perfect, being situated behind the mass. Through an incision, one inch long and half an inch deep, four hundred and twelve concretions were removed from the cavity, and a large one seated in the common duct was crushed with Lion forceps and removed piecemeal. In explaining the pathology of the case, Mr. Thornton thinks that "the large stone was originally in the gall-bladder, and then became impacted in the common duct, so as to abrogate the function of the gall bladder, and that the other stones were formed in the hepatic duct, and above it, in the substance of the liver, where they gradually hollowed out the cavity" in which they were contained.

CORRELATION OF TONSILS AND GENITALS.

It has long been held by certain writers that the tonsils and genitals are in some way correlated. An opinion prevails that wasting of the testes may follow excision of these organs. At a recent meeting of the Hunterian Society, of London, Mr. Pearce Gould presented a man aged twenty-seven with congenital absence of the tonsils, in whom the genitals were imperfectly developed and sexual desire absent. The man had a feminine appearance, and had neither beard nor moustache. The tonsils were represented by two small nodules between the pillars of the fauces. Mr. Gould held that there was no evidence for the popular belief in England that excision of the tonsils before puberty influenced virility, and he referred to a practice in Zanzibar of removing the tonsils from all male infants, which seems, in that country at any rate, to be without influence on the development of the testicles. It would be interesting to know of any genuine cases of failure of development of the sexual organs in persons who had been subjected to tonsillotomy. The tonsils were found normal in two women in whom the ovaries were congenitally absent. It was the general opinion of those who took part in the discussion on Mr. Gould's case, that a relationship between the two organs had not been established.

Tonsillitis occurs with special frequency in adolescents, and in a recent Aberdeen thesis on this subject by Haig Brown, the author refers, without details, however, to the occasional atrophy of one testicle after removal of the corresponding tonsil.

An interesting point bearing on this question is the frequency with which acute tonsillitis occurs in newly married people. We have known the honeymoon interrupted in several instances by this painful affection, to which also Shepherd, of Montreal, has called attention, suggesting that it bears out the old idea of the intimate association of the tonsils with the genitals.

THE PAINS OF PREGNANCY.

It is now generally known, since Braxton Hicks called attention to the fact, that there occurs constantly, during pregnancy, an intermittent contrac-

tion of the uterus which can be distinctly felt at intervals of about ten minutes, as soon as the organ becomes easily palpable through the abdominal walls. So constant, indeed, is this phenomenon that Playfair assigns to it a high place among the diagnostic signs of pregnancy. Some recent observations made by Schatz, of Rostock, show, moreover, that for a period of about twenty-four hours, at a certain time, sometimes four weeks, more frequently three weeks before true labor begins, these contractions become exaggerated to such a degree as closely to resemble the pains of labor; they occur, at first, once in the half-hour, gradually increasing, however, in frequency, until, finally, they recur every three minutes; from this maximum point their frequency decreases, and they are gradually merged again in the normal intermittent uterine contractions. The force exerted by this muscular contraction is sufficient to dilate the os, often as much as a centimetre or more, so that a careful observer might be led to suppose that true labor had begun.

These observations of Schatz might be of considerable practical importance, should it be desired to bring on labor a few weeks before the normal time, without resorting to operative interference, for it is well known that certain drugs—notably ergot, gossypium, and pilocarpin—while unable to produce uterine contractions, can much increase their force when they have once begun, so that, as soon as these pains of pregnancy have become well established, the administration of such remedies might be begun with some hope of converting the false into the true labor pains.

Splenectomy for floating hypertrophied spleen was successfully performed on the 21st instant, by Dr. J. R. Nilsen, at the New York Post-Graduate Hospital. At the last report the patient was doing very well, feeling better than she has for years, and there has not been a single untoward symptom since the operation.

The College of Physicians of Philadelphia will celebrate the Centennial Anniversary of its foundation on January 3d and 4th.

The Medical Society of the County of New York has recently expelled a member, by a unanimous vote, in accordance with the recommendation of the Comitia Minora. *The New York Medical Journal* says the charges brought against him are understood to have been the result of certain exposures made in the columns of The Medical News a month ago.

The Alumni of the University of Pennsylvania, residing in New York City, recently held a meeting, at which Dr. Meredith Clymer presided, and at which a local society was organized.

The Graefe Medal, founded in honor of the great ophthalmologist by the Ophthalmological Society of Heidelberg, is to be awarded every ten years to the person, irrespective of nationality, who has done most to promote the progress of ophthalmology, and the first award has just been made to Professor Helmholtz, the inventor of the ophthalmoscope.

By an ordinance of the Bohemian Government, all district physicians are now obliged to pass through a course of studies in practical bacteriology.

Through the recent death of Lady Wilson, the Royal College of Surgeons becomes entitled to the legacy of £200,000, in accordance with the conditions of the will of Sir Erasmus Wilson.

REVIEWS.

?Quiz Compends? No. 8. A Compend of the Diseases of the Eye; including Refraction and Surgical Operations. By L. Webster Fox, M.D., and George M. Gould, A.B. 12mo. pp. 150. Philadelphia: P. Blakiston, Son & Co., 1886.

Recently the "quiz compend" has shown dissatisfaction with the restriction of its function to the helping of the medical undergraduate to his diploma; and a disposition to extend the benefits of its cheap binding, thin paper, small type, and over-worked wood-cuts, to all portions of the domain of medical science. The reason of this is not far to seek. Cheap medical schools have caused a demand for cheap medical literature. To supply the demand we have the reprints of foreign works of long-established reputation in our annual "libraries," "encyclopædias" that undertake to supply all valuable medical knowledge in a single cover, "manuals," and "practical handbooks;" and should not the "*? Quiz Compend?*" enter this promising field? The authors of this one evidently think it should. They say: "Our second object has been to give the busy general practitioner, who has never considered the importance of this knowledge to himself, or has relied on his neighbor, the oculist, to do all such work for his patients, a few outlines of the science." Unquestionably the effort of cheap medical literature to make up for the deficiencies of cheap medical schools, is praiseworthy. We do not mention it with the least disfavor, but only to make clear the *raison d'être* of the "*? Quiz Compend?*"

The work before us is ambitiously comprehensive in its scope, generally sound in its teaching, and well up to date. Each disease is treated of in several short paragraphs; each of which has its separate heading, printed in heavy-faced type. These headings are usually synonyms, definition, causes, varieties, symptoms, diagnosis, prognosis, and treatment. The illustrations are mainly of surgical instruments and pieces of apparatus. Appended to the book are some statistics of the frequency of blindness, and the principal diseases of

the eye, and of the proportion of successes in cataract operations at the hands of various operators. The book is not free from errors very suggestive of haste, and there is a certain amount of metaphysical froth upon the current of its teaching that the "busy general practitioner" could well dispense with.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, November 4, 1886.

The President, B. F. Baer, M.D., in the Chair.

HYSTERORRHAPHY.

Dr. Howard A. Kelly read a paper upon a new operation which he called hysterorrhaphy, or the *suspension by suture* of a *viciously posed uterus;* that is, an organ prolapsed or retroflexed, which it is impossible to relieve by treatment per vaginam. He first applied this method April 25, 1885, upon a patient who had been under the care of several specialists, and under his own care for nearly three years. The uterus had lain acutely retroflexed, with a large soggy fundus in Douglas's pouch below the level of the cervix. Months of rest in bed, combined with careful packs and counter-irritation, and for a long time application to the endometrium, failed to cure the flexion even temporarily.

The patient had been operated upon a year previously, and a very tender ovary removed per vaginam. On this occasion the left tube and ovary were removed, and as the right tube could not be felt it was concluded it had atrophied. The uterus was then raised and a sharp band of cicatrix-like tissue felt half encircling it in the angle of flexion, when the futility of any attempt to relieve the condition from the outside was at once evident. Silk sutures were passed through the left horn of the uterus and the body suspended from the anterior abdominal wall about one and a half inches above the pubis to the left of the incision. The suspensory sutures were passed between two ligatures encircling the horn and the base of the pedicle to avoid the dangers of tearing out and of bleeding. The uterus thus suspended remained in place one year, when the right tube enlarged to a hydrosalpinx, and just before the operation for its removal dragged the fundus over.

Dr. Kelly urged that in future both cornua be utilized and attached between one and a half and two inches above the pubis to allow room for free expansion of the bladder; and again, that while in most instances the disease will have been of such long standing as to involve chronic incurable disease of the appendages necessitating their removal, yet in some cases the good effects of drainage of these latter, which are raised with the body, should be tried. The operation is to be urged where the long retroflexed infiltrated uterus is unable to stand up straight alone after removing diseased ovaries and tubes, and if adhesions bind the fundus down they should be carefully severed. He also insisted that the operation for shortening the round ligaments was not admissible for retroflexion alone, as owing to enormous mechanical disadvantage the slightest degree of relaxation would allow a reproduction of the deformity.

While in simple prolapsus, if a suprapubic operation of any sort were ever necessary, which the speaker doubted, he would prefer a simple, aseptically made, abdominal incision and direct support by attaching the fundus to the anterior abdominal wall, to an operation which has a doubtful and possibly a high rate of mortality, and of which the ratio of success is even more problematical.

The operation has been devised and performed independently by a number of prominent gynecologists in various parts of the world, among whom are Kœberle, Bardenhauer, of Cologne, Hennig of Leipzig, Czerny, of Heidelberg, a surgeon in the north of Italy, Lawson Tait, and probably Keith, and he had the record of two cases, not published, which Dr. Sänger, of Leipzig, kindly gave him during the past summer.

Dr. Drysdale remarked that he had performed a second operation upon a lady upon whom eighteen years previously Dr. Atlee had performed ovariotomy for the removal of an ovarian tumor; at the first operation the uterus was found prolapsed. In this operation Dr. Atlee had used the clamp to secure the pedicle, and at the second operation the uterus was found attached to the original wound. The prolapse had been effectually cured. He thinks both cornua should be secured to the abdominal wall. He had never met with a case of retroversion that could not be relieved by pessary after curing the accompanying endometritis. Many years ago, a lady who had been for eight years under the care of Dr. H. L. Hodge for retroversion, and in whom the presence of a pessary excited such expulsive efforts that it could be worn for only a week at a time, came under the care of Dr. Drysdale; he treated the endometritis first, and when it was cured a pessary could be retained and complete relief was secured.

Dr. J. Price remarked that Tait considers it dangerous to stitch the fundus uteri to the abdominal wound and has abandoned it. In some operations he introduces sutures to draw the uterus high up that he may more readily remove the tube close to the cornua.

Dr. Baer thought it seemed the most natural method to stitch the fundus to the abdominal wound. He asked for what reason Dr. Tait considered it dangerous. He thought the field of Dr. Kelly's operation would be small, as, when the endometritis was cured, a pessary or other support would relieve the retroversion or flexion. After laparatomy or removal of the uterine appendages it might be advisable in some cases to draw the uterus up. He has had no experience with such a procedure. He does not like the Alexander operation; he considers it unscientific, and in many cases it has failed to cure the displacement.

Dr. Longaker said that granting that anteversion could be secured by Dr. Kelly's method, he feared the bladder would not be allowed to expand—a fixed anteversion would itself be pathological. He would hesitate to stitch the fundus to the abdominal wall even after removal of the appendages. Retroflexion does not necessarily produce discomfort as some cases have no symptoms to call attention to the condition.

Dr. Harris recalled the case of Mrs. Reybold, whose uterus was suspended for fifty years. She died at eighty. The senile organ was drawn out into a tongue-shape; the uterine attachment was one and a half by three-fourths inch at time of death, the uterus was four and a half inches long and the vagina was lengthened and

card-like. There had always been a tender spot in the cicatrix, probably from tension.

Dr. Kelly stated, in reply, that he considered the main points which had been raised had been already answered in the paper. He considers these cases *rare*, and by no means recommends a resort to section and suspension without first trying every other known expedient likely to relieve, and then only in those cases in which the local disorder causes such pain or disability as to render life a burden. He considers the operation established, however, in those cases in which, after removal of the appendages, the flexed organ fails to remain upright when lifted into position. An occasional resort to hysterorrhaphy will not affect the table of recoveries from operation, but will affect the list of patients *cured*, which is not always made so prominent after abdominal section.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, November 15, 1886.

The President, James T. Whittaker, M.D., in the Chair.

Dr. P. S. Conner read a paper on

STRANGULATED HERNIA.

(See page 621.)

Dr. W. H. Wenning stated that the last case reported was one of a great deal of general interest, but of especial interest to himself. He was called a week ago to see a lady with strangulated hernia. On the day previous, as he was told, the hernia had been reducible in part. She had had the hernia for ten years, and had always been able to reduce it in part. On the morning in which he was called, however, she did not succeed in its reduction. She went to bed, thinking that she would succeed in the recumbent posture. When he saw her there was considerable swelling of the right labium. Below this swelling the right ovary could be distinctly felt. He tried to reduce the hernia, but failing, deferred further efforts. Returning in an hour he found the swelling much increased. Considering further delay dangerous, he advised an operation and Dr. Conner reduced the gut without difficulty. Everything looked promising, and continued to do so until the next morning; from that time on, however, the temperature continued to rise, until, after the expiration of thirty-six hours, death occurred. Everything indicated that the death was a result of shock. There had been no vomiting during or after the operation, except slight vomiting from the ether. As the ovary was so low down, he had examined the uterus, which he found somewhat lower than normal, but the axis was normal. The woman menstruated regularly up to the time of operation, and the flow came on after the operation. This, he thought, might have had some influence in hastening the fatal termination of the case.

Dr. T. A. Reamy stated that he had done the operation for strangulated hernia twelve times. All were cases of femoral hernia in women; ten recovered, two died. In one case, that of an old German, the strangulation had existed for five or six days, the bowel was much discolored, but a good recovery was made. He makes it a rule whenever there is much effusion or discoloration, to open the sac. He used silver wire for the purpose of drainage in all his cases.

Dr. R. W. Stewart remarked that there is one kind of hernia in childhood which has not been referred to, that is, in which the bowel pushes down through the lateral wall of the vagina and presents at the vulvar orifice. The last case he had seen was a child with a tumor presenting in one of the vaginal walls, with all the symptoms of strangulated hernia. It is exceedingly difficult to explain how this form of hernia can occur, for the vaginal wall, reinforced by all the other structures of this region is usually sufficiently strong to prevent the exit of the organs above it.

Dr. J. Ransohoff thought that a great deal more harm is done by delaying the operation too long than by early operation. He had formulated a rule to govern his own conduct in cases of strangulation. It was simply to make very feeble taxis, unless he had a supply of ether at hand, and to use very little force, even with the aid of an anæsthetic. As a rule, the patient himself can return the hernia much better and more safely than the surgeon can return it. He knows just how much force he can use. If the first attempt at reduction is unsuccessful, he generally makes a second attempt under an anæsthetic, after giving the patient to understand that if taxis is not successful the operation will be made then and there. If the reduction cannot be made by taxis, the result of the operation after it has been attempted largely depends on the force used and the delay after it. The bowel is often irritated by it, the sac distended with fluid, and loaded with germs that have migrated from the intestinal canal. We can understand, therefore, how readily inflammation of the peritoneum may develop.

He called attention to the trick which is practised a good deal in Scotland and to some extent in Germany and France. This consists in using the finger much as a hook, getting it underneath the constricting band, giving it a slight jerk, and in that way tearing some of the fibres and permitting the bowel to return. He knew that the old statistics collected by Gay and Steen have shown that the chances of death are much greater after the sac has been opened. That was unquestionably true at the time in which the statistics were written, but under the present management of cases it is different. The sac should be opened in every case in which the strangulation has existed for more than from twenty-four to thirty-six hours. If we do not take this precaution, we may later find that strangulation has existed within the sac as well as outside. He referred also to the radical treatment of strangulated hernia, by excising the sac and tying the stump. Very excellent results have been recorded from this method of treatment, but it is yet too soon to determine whether these radical cures will be permanent.

Dr. D. Young stated that from his experience he had concluded that it required a good deal of rough handling to injure the bowel, and hence he does not hesitate to use considerable force in attempting to reduce the hernia. He is in the habit of attempting restoration by taxis for five minutes; failing, he applies cold for three or four hours, then makes another attempt. If this is unsuccessful, he administers an anæsthetic. He has tried the method of exerting forcible pressure with the tip of the finger, but without result. In performing

taxis, he is always careful to include a large mass of the tumor in his hand, and this, he thinks, diminishes the danger of injuring the bowel.

DR. CONNER, in concluding the discussion, remarked that the difficulty and the danger, in most cases, lie undoubtedly in the delay, and not in the early operation. Of the thirty-three cases reported, twenty-one died; six of them within twenty-four hours, three after living a long time, and nearly all of the rest were cases in which there had been a delay of from three to seven days. The cases were not all hospital cases; only six out of the entire number occurred in hospital practice. If there is, in a given case, room enough in the ring to admit the finger, that ring is not making obstruction. The trouble in these cases is that the nature of the case is not understood, or is overlooked, and the strangulation of the gut is not recognized. If more cases were operated upon in this vicinity we would have fewer deaths from the disease. The operations are not dangerous in themselves, but only from the conditions that necessitate them. An apparently healthy bowel may be in such a condition as to go on to destruction within the peritoneal cavity, but this is not often the case.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, November 8, 1886.

DR. C. MCBURNEY IN THE CHAIR.

DR. ABBE presented a case of

TRIGGER FINGER,

occurring in a child ten years of age. On closing the right hand and then opening it, all the fingers are at once straightened, except the little one, which remains flexed upon the hand, being held there by a small obstacle in the flexor tendons. At the flexor crease of the palm of the hand, over the little finger-joint, a small nodule can be felt on the tendon; the little finger can, however, be straightened out readily with the other hand. The patient first noticed about a month ago,

FIG. 1.

while knitting, that when she wanted to put the needle down and open her hand, the little finger would still remain flexed; and since that time no great change has taken place.

The first of his five cases of trigger finger he saw in 1882, in a lady fifty years of age. The middle finger (Fig. 1) being involved caused great annoyance by catching around the handle of the hair brush; when using this, she was compelled to release the finger with the other hand.

The second case (Fig. 2) was that of an artist, eighty years of age, also occurring in the middle finger; this

FIG. 2.

bothered him exceedingly while stropping his razor; it remained so for a year and a half. The treatment consisted in encircling the middle of the finger by a band to prevent it from closing to the catching point, and by thus avoiding irritation of the node in the sheath of the tendon, the finger was restored to perfect condition.

The third case (Fig. 3) was an attack of the ring finger in the same hand of this patient, one year after the middle finger was cured. The symptoms were the same, and he is still under treatment.

FIG. 3.

The fourth case (Fig. 4) was that of a girl aged ten, previously referred to, whose little finger of the left hand was affected, causing annoyance when knitting. It catches itself and has to be released constantly.

A fifth case (Fig. 5) occurred in a lady fifty-five years of age, also the middle finger of the right hand, which especially annoyed her while carving.

Fig. 4.

Fig. 5.

He then showed the accompanying drawings in illustration of the subject. He stated that some writers believed it to be owing to an obstruction in the joint rather than to a thickening of the sheath; the more recent views being that it is owing to a thickening of the sheath of the tendon with perhaps a slight periostitis. Of the cases he had seen, only two presented distinct nodes—the lady of fifty-five and the patient now shown; the others presented a small thickening of the sheath but there were no nodes. The only new feature he had to advance in these cases was the method of treatment. If the finger could be so fixed as to prevent irritation at the seat of the thickening or of the node, he believed the patient might be cured; it had been successful in the one case, and the other patients were being treated in the same manner.

Dr. Stimson called attention to the fact that the patient could close the distal and middle phalanges without locking the finger; and that the locking was only of the metacarpo-phalangeal joint. He did not see, at first sight, how a locking of the tendon would account for that fact, and inquired whether any displacement of the joint-surface had been noticed.

Dr. Abbe replied that he had noticed it, and that there seemed to be a little rim which got on the rim of the metacarpal.

Dr. Stimson then asked if the node could not be felt when the finger was extended, and if it was not at the level of the metacarpal joint.

Dr. Abbe replied that it could be felt, but not so distinctly, and it did not seem to be directly over the joint.

Dr. Stimson asked if there had not been operations for this difficulty.

Dr. Abbe replied that there had, but they had been very unsatisfactory. Nélaton first claimed the cause to be a thickening of the tendon sheath, but, in his later papers, he stated his belief that a foreign body was the cause.

Dr. Lange reported a case of

TUMOR OF BLADDER; SUPRAPUBIC SECTION; EXTIRPATION OF TUMOR FROM THE FUNDUS; SUTURE ON BOTH PLACES; RECOVERY.

Mr. B., fifty-three years of age, from a healthy family, and previously always in good health, suffered since about four or five years ago from hemorrhage after micturition. The quantity of blood was mostly small, sometimes, however, quite abundant. There had never existed much pain or abnormal frequency in micturition. Lately, small fleshy lumps of tissue have been discharged with more or less inconvenience, but better condition following. Previous examinations of the bladder had been followed by severe feverish reaction.

Dr. Lange saw the patient on the first of October. He looked anæmic, but was well nourished, and did not present a cachectic appearance. He had just passed with his urine a fleshy piece about the size of a small cherry. The microscopical examination of the soft, very brittle tissue, showed numerous disintegrated cells of pretty large size, in advanced fatty degeneration, only the rather large nuclei could be distinguished with certainty. Another smaller piece, brought out in the eye of the catheter, showed distinct papillary structure, with a regular lining of columnar epithelium, the origin of which it is difficult to trace. Neither by palpation through the rectum, nor by means of the catheter, could the existence of the tumor be corroborated. On October 11th, in the presence of Dr. Keyes, and with the assistance of Drs. Kelley, Slager, and Lange, suprapubic section was done. A balloon in the rectum, filled with about 250 c.c. of water and about 300 c.c. of boracic solution, in the previously washed bladder, failed to raise that organ noticeably above the pubes. An additional tighter filling of the rectal balloon, and more fluid in the bladder, also helped very little. The peritoneum had to be stripped back, and it was found that the bladder was very flabby, and, apparently, paretic. After it had been opened, the patient was brought in the elevated pelvic position, as recommended by Trendelenburg. This procedure cannot be too much recommended. The intestines running against the diaphragm, the bladder becomes distended by negative pressure, like the vagina in Sims's position. With light from above, and an opening in the bladder of sufficient size, even the posterior wall of that organ becomes easily accessible.

The tumor was found about one centimetre behind the right ureter, and did not occupy a larger area than one of about two centimetres in diameter. It was flat, its superficial layers soft, and easily yielding to the sharp spoon. It was thoroughly scraped, and then the basis with some apparently healthy tissue all around, extirpated. The wound was sewed up with iodoform catgut-etage sutures. The anterior section in the bladder was likewise closed by catgut sutures, which did not pass through the mucous membrane. The abdominal opening was left open in its lower portion, and loosely packed with iodoform gauze. A Nélaton catheter was permanently left in the bladder. Not a drop of urine escaped through the abdominal wall, and at the end of three weeks the patient was sent to his home. The catheter became repeatedly

clotted with blood, especially about the fourth or fifth day, when some hemorrhage from the bladder took place. Cold injections, and tinct. fer. muriat. easily checked this. I must mention one accident with reference to the rectal balloon. About three-quarters of an inch above the anus the anterior wall of the rectum was ruptured, happily the peritoneum was not torn.

Dr. Lange exhibited the balloon he had used, and thought that its somewhat resistent walls and stiff shape when filled, were a source of danger. He advised balloons of thinner and softer rubber, and also of greater length. He had so far used suture of the bladder after suprapubic section in five cases, in four of which the operation was done for stone. In all of these cases primary union had taken place, and no urine had escaped through the abdominal wall. The wound in the latter he hadmostly left open, and only in the last mentioned case partially closed. He had always used the catgut suture, and thought that dry iodoform catgut was the safest material. He thought it a point of some importance that the mucous membrane is not taken into the suture, that fine needles and thin thread are used, the latter as dry iodoform catgut, which, after being soaked within the suture canal, will exactly fit the same, and not easily allow of the entrance of urine. He had always applied the first and last sutures exactly corresponding to the upper and lower angle of the wound, or rather beyond it, and tied the sutures, while some slight traction on the edges of the wound was made parallel to the direction of the wound. The elastic wall of the bladder will afterward become shorter and thicker, and the closure of the wound will be a very accurate one.

His first case was treated in this manner six years ago, before the general discussion had been taken up with reference to the advisability of sewing up the bladder or not. He left the permanent catheter in the bladder as long as it was well borne—if possible, six or eight days. He gave fluids in ample quantity, and kept the patient moderately under the influence of opium.

The microscopical examination of the tumor, by Dr. F. Heppenheimer, revealed the following interesting points: The *muscularis* contains numerous bloodvessels with thickened walls, and also free hemorrhages into the tissue. The unstriped muscle-cells contain a great number of round cells, of the size of white blood-cells, irregularly strewed between them. Thirty or forty of them are sometimes seen to congregate around a blood-vessel. Toward the free surface they are accumulated in thousands, lying thickly together. Only in some places it can be noticed that they are attached to each other by fine connective tissue, as berries to a stem. They contain, also, capillary bloodvessels. In the middle of this small, round-cell, sarcomatous mass, bulbs of large-cell sarcoma are to be seen. These have no connection with the small-cell sarcoma, and while in some places they are completely mixed and interwoven with the small cells, only the bulbs of the large cells have distinct boundaries. But they are always surrounded by the small-cell sarcoma. As the number of small cells is by far greater than the large cells, he calls the neoplasm a small-cell sarcoma. In his search in the literature of neoplasms of the bladder he has found neither a small nor a large round-cell primary sarcoma mentioned as being found in the bladder, those described being all fibro-sarcomas. The scrapings consist of the same cells thoroughly mixed, but mostly of the large-cell variety. They are not so densely congregated, but are separated by a myxomatous intercellular substance. They all bear evidences of rapid growth.

Dr. Lange remarked that the microscopical examination of the tumor was extremely interesting, as the conditions shown had been found in but very few instances.

DR. WEIR said that he had had to resort to the operation last May. He distended the rectum and bladder according to the mode of Petersen, and exposed a tumor in the bladder which was lying in the region of the left ureter, and which allowed itself to be readily seized by its base. This tumor, the size of a hen's egg, was removed, the parts thoroughly scraped with Volkmann's spoon, and nothing further done. Microscopic examination showed that it was a sarcoma. The wound was left open and the patient placed on his side with a drainage tube left in the wound. It healed in six weeks. Recurrence has since occurred.

DR. LANGE remarked that probably the bleeding came from the internal surface of the bladder where the edges of the mucous membrane had not been united.

DR. WEIR asked Dr. Lange whether he was much annoyed, in his case, with bleeding from the pre-vesicular tissues, as had occurred in his case, though the handle of the scalpel was principally used.

DR. LANGE replied that he was not, as he carefully ligated even the smallest bleeding vessels.

DR. GERSTER stated that he witnessed the operation by Dr. Weir, and was astonished at the profuseness of the hemorrhage when the pre-vesical fat was divided; and he believed the recommendation of Thompson, to tear the parts which contain large vessels, is not a very good one, for the hemorrhage from a torn vein is more difficult to check than one that has been cut.

DR. WEIR remarked that Thompson states he pushes the vessels on one side.

DR. GERSTER replied that that was true, but one is very apt to tear them while doing so. He much preferred the method of Dr. Lange, as there was less hemorrhage, and was of advantage in examining the bladder.

DR. WEIR remarked that the use of the rubber balloon in the rectum, resorted to by Dr. Lange, revealed another risk of this method of Petersen, viz., splitting of the rectum; Pousson has already shown that there is also danger of producing rupture of the bladder.

DR. WYETH stated that in one instance where he was assisting in a case of ovariotomy, the bladder was pierced and its floor fully brought to view, and yet there was no balloon in the rectum. The urine escaped into the peritoneal cavity, which was washed out with 1 : 20,000 sublimate solution. The edges of the wound of the bladder were stitched to the edges of the wound in the integument, and in six weeks was healed. He mentioned the case simply to show with what ease the floor of the bladder may be seen without using the balloon, and that extravasation of urine into the peritoneal cavity is not necessarily fatal.

DR. LANGE thought the position of the patient had very much to do with the ease of examining the floor of the bladder.

MONTREAL MEDICO-CHIRURGICAL OCIETY.

Stated Meeting, November 5, 1886.

The President, James C. Cameron, M.D., in the Chair.

EXPLORATION OF THE KIDNEY.

Dr. Shepherd related the history of a case where he had cut down on the kidney some two weeks previously, in the hope of relieving urgent uræmic symptoms. The history of the case was as follows:

Samuel B., aged thirty-eight, was admitted into the hospital July 13, 1886, complaining of frequent and painful micturition. These symptoms first appeared three months before, and he had been treated by several physicians for catarrh of the bladder. Had always been healthy up to three months ago, and was formerly very stout, but had lost considerable flesh lately. He made water every fifteen minutes, night and day, and each time the pain was severe; it commenced in the small of the back on the left side, and extended down the groin and along the urethra to the point of the penis. He complained of continuous dull aching pain in the left lumbar region. Had never passed any blood; urine contained a small amount of pus but no mucus; sp. gr. 1.005; contained albumen and only two grains of urea to the ounce; quantity passed daily sixty to seventy ounces. A careful examination of the abdomen was made, but no tumor could be made out in the lumbar regions. Bladder sounded for stone with negative results. From the condition of the urine and general symptoms Dr. Shepherd concluded that he was suffering from some affection of the kidney. He remained in the hospital some weeks, but left no better than he entered, treatment having no effect whatever. Dr. Shepherd afterward attended the man at his own house, and the symptoms still continued as before, viz., frequent and painful micturition, with pus in the urine. The quantity of pus now rapidly increased and the urine diminished; he passed twenty to thirty ounces of urine daily, thirty per cent. of which was pus. He also became rapidly emaciated, and there was occasionally an elevation of temperature in the evening. The patient went to some mineral springs in the neighborhood, and was not seen by Dr. Shepherd for several weeks; not, in fact, till the latter end of September. He was then much emaciated, and seemed to be in a stupid, drowsy condition; he was passing now only twenty ounces of urine daily and fifty per cent. of this was pus. A tumor could now be indistinctly made out in the left lumbar region. It was aspirated, and at first a little thick pus was drawn off, and then thin bloody serum.

He was again admitted into the hospital October 11, 1882, and the day after admission passed only six ounces of urine from which all pus had disappeared. His condition was serious; he had well-marked uræmia, and Dr. Shepherd, thinking that the arrest of urine might be due to a stone blocking up the ureter, determined to cut down and explore the kidney, a proceeding which could do no harm and might possibly do good. The horizontal lumbar inclsion was practised, beginning posteriorly at the edge of the erector spinæ and extending downward and outward below the twelfth rib. The kidney was soon reached and found to be enormously enlarged and non-fluctuating, the finger easily went through some tissue to the depth of an inch at the upper end. A large aspirating needle was thrust in several directions into the kidney, but failed to reach either a stone or pus. From the great enlargement and general appearance it was thought that a neoplasm existed, and considering that the man was secreting only six ounces of urine daily, the conclusion was arrived at that the other kidney was also diseased, so a drainage-tube was introduced and the wound sewed up. The man recovered from the immediate effects of the operation, but died comatose that night. No post-mortem examination was allowed, but after death the wound was opened and the kidney was taken out, at the same time the kidney of the opposite side was searched for but could not be found; it had probably been affected with a similar disease and undergone atrophy. On cutting through the greatly enlarged kidney numerous pockets of thick tenacious pus were found, also some large cysts distended with clear serum; the cortical substance was studded with small suppurating points and was much thickened. Dr. Wyatt Johnston examined the case and came to the conclusion that it was a tuberculous kidney —the tubercle bacillus was found.

Dr. Shepherd drew attention to the fact of the great obscurity of these cases in the early stage, and that pyelitis was occasionally attended by frequent painful micturition. The pain was, in this case, a very prominent symptom. He did not consider that the man had died in consequence of the operation but from uræmia. He also said that this case taught an important lesson, viz., that the condition of a kidney cannot be accurately ascertained without cutting into the kidney itself, a mere external examination giving negative results. If the pus cavities had been emptied the result would have been the same, but he would in future always perform a nephrotomy on a kidney which he had cut down upon, even if, as in this case, the condition did not seem to warrant it.

REMOVAL OF A LARGE CALCULUS FROM THE KIDNEY.

Dr. Shepherd also exhibited an enormous calculus weighing four ounces seven drachms, which he had removed a week before from a young man, aged twenty-six, who had suffered from lumbar pain for some seven years. The patient was doing well and a full report was promised at the conclusion of the case.

Dr. Gardner then read a paper entitled

GLIMPSES OF ABDOMINAL SURGERY IN EUROPE DURING THE PAST SUMMER,

in which he described the procedures followed by Schröder and Martin, and by Lawson Tait, with whom he spent a month, and for whose wonderful results he could vouch. He mentioned having seen Mr. Tait open the abdomen and evacuate a fetid abscess about the uterus in a woman who was apparently dying from puerperal peritonitis. The cavity was drained but not washed out. The patient made a rapid recovery. He attributed Mr. Tait's wonderful success partly to the small incision he made and to his great manipulative skill and rapidity in operating. He frequently completed an ovariotomy inside of ten minutes.

CORRESPONDENCE.

DIAGNOSIS AND TREATMENT OF TOBACCO AMBLYOPIA.

To the Editor of The Medical News,

Sir: I have read with much interest the report, in The News of November 13, of the discussion on "Tobacco Amblyopia" in the Philadelphia Neurological Society, and would like to add a word thereto.

It has been my practice for several years to use inhalations of amyl nitrite in all amblyopia cases, and I have found it of great value, especially (if not exclusively) in the cases of tobacco amblyopia. I believe that it is of great assistance in differential diagnosis, for thus far it has proved that, in progressive atrophy from other causes, no benefit is derived from the exhibition of the amyl, while in tobacco amblyopia vision is immediately and markedly improved.

For instance, a patient presents himself with a history of rapidly failing vision, without pain or inflammation, and examination discovers a dirty grayish hue of the disk, with diminution of circulation, and S.$=\frac{20}{CC}$. Inhalation of a few drops of amyl, pushed only to the point of lively hyperæmia of the face and headache, will cause a decided increase in the circulation in disk and retina, and within five minutes S.$=\frac{20}{XL}$. This evidence that vision is not permanently lost is of great value in fortifying the patient for the abstinence which is necessary to his cure. The sudden improvement is, for the most part, temporary, as, after an hour or two, S. recedes to perhaps $\frac{20}{C}$, but it is not wholly lost, and daily inhalations, combined with tonics and abstinence from tobacco and alcohol, have, in my hands proved much more rapidly curative than the strychnine and electrical methods. As the only action of the amyl seems to be to increase the blood supply, it would seem that tobacco amblyopia is due simply to a loss of function from anæmia, which may result in atrophy if long continued.

Geo. H. Powers, M.D.,
Prof. of Ophthalmology and Otology,
University of California.
215 Geary St., San Francisco, Cal.,
November 22, 1886.

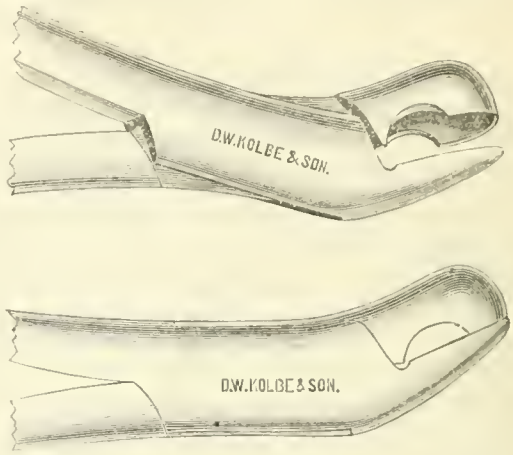
NEW INVENTIONS.

TREPHINING FORCEPS.

By WM. BARTON HOPKINS, M.D.,
of Philadelphia.

The instrument here represented is designed to cut away the sharp, ragged edges of bone, especially of the internal table of the skull, which frequently remain after trephining depressed fractures. Though constructed expressly for the purpose of working close to the dura mater without pressing upon or bruising it, this instrument is well adapted for connecting two trephine cuts, either in extensive operations upon the skull or in removing sequestra from the long bones.

In order to do its work properly, to cut a clean chip of bone without jarring or crunching, it must be made very differently from the ordinary gouge forceps. The chip with this instrument is cut wholly by the upper jaw, the lower jaw acting simply as a counter. The interior of the upper jaw must therefore be sufficiently hollowed



out to render the internal face of the blade perpendicular for at least an eighth of an inch above its edge. The lower jaw is slightly hollowed out to prevent slipping, and both jaws are set at an angle with the handles.

2018 Spruce Street.

OBITUARY.

JOHN PURDUE GRAY, M.D.

Dr. John Purdue Gray, Medical Superintendent of the New York State Lunatic Asylum, Utica, N. Y., died at the Asylum on Monday, November 29th, aged sixty-one years. The immediate cause of death was Bright's disease, and its complications. In 1882, he received a gunshot wound at the hands of an insane man, not an inmate of the asylum, who entered his office and discharged a pistol ball from a heavy navy revolver, which entered the left side of the face, passing along the floor of the nasal passages, making its exit through the right cheek. Although Dr. Gray recovered from the immediate effects of the injury, it is well known he suffered from the shock received, and the consequent impediment to respiration from obstruction of the nasal passages, to the day of his death.

Dr. Gray was a native of Half Moon Township, Centre Co., Pennsylvania. He received his academic training at Dickinson College, and was graduated from the medical department of the University of Pennsylvania, in 1848, soon after which he was appointed on the staff of the Philadelphia Hospital. Following his chief, Dr. Benedict, after his appointment as Medical Superintendent of the State Asylum at Utica, he was appointed third assistant physician September, 1850, and succeeded Dr. Benedict on his resignation in 1854. He served the State of New York in this office thirty-two years.

During this long period, in addition to his administrative and professional duties, he was the editor of the *American Journal of Insanity*, scattered through the pages of which, and in his annual reports for thirty-two years, are to be found his many contributions to the literature of his specialty, and his views upon many questions pertaining to the care of the insane. He furnished

the plans for the Michigan Asylum for the Insane, and of the Buffalo State Hospital, and was one of the Commissioners appointed for the location and erection of the Hilliard Asylum. He was at various periods President of the Association of Superintendents of Asylums for the Insane; the New York State Medical Society; New York State Medical Association; honorary member of the British and Italian Psychological Associations; Chairman of the Sections of Psychological Medicine of the International Congress of 1876 and 1887; and Lecturer on Mental Diseases in the Albany and Bellevue Medical Colleges. He was also an active member of other medical societies.

He was frequently called into the courts, and commissioned by the Governor to make special examinations, as an expert, and his exhaustive and important public services upon the trial of Guiteau are still remembered. Of an active, resolute, and aggressive mental organization, he was constituted to be a leader. This temperament naturally led him to combat the views of others with his own convictions, which he strongly adhered to and as vigorously defended.

As early as 1857 he urged upon the managers a plan for the prosecution of microscopical research in brain disease, which was not matured, however, until 1871. He steadfastly upheld the honor of the profession in every relation to his work, and exerted himself to elevate the medical service of his hospital by the selection of assistant physicians who had the previous training of a general hospital. The news of his death will be received with sorrow in this and other lands, and will be regarded by his special *confrères* as an irreparable loss.

NEWS ITEMS.

CINCINNATI.

(*From our Special Correspondent.*)

Changes in the Colleges and Hospitals.—During the last summer, the clinical department of the Cincinnati Hospital was incorporated as the Clinical Department of the University of Cincinnati. It is understood that a medical department will soon be established, probably in one of the colleges already in existence.

Dr. E. W. Walker, formerly of the Medical College of Ohio, has accepted the Chair of Principles of Surgery and General Pathology at the Miami College.

Dr. James M. French has been appointed Lecturer on Morbid Anatomy and Demonstrator of Pathology at the Medical College of Ohio.

Dr. Frederic Kebler, Lecturer on Pathology and Hygeine, and Instructor in Histology at the Medical College of Ohio, has received the appointment of Pathologist to the Cincinnati Hospital.

During the present winter, each member of the adjunct Faculty of the Medical College of Ohio is required to conduct a quiz on the lectures of the professor with whom he is associated. The quiz classes are free, and have been universally attended by the students, whose enthusiasm for study they appear to have greatly aroused.

An Addition to the Building of the College of Physicians of Philadelphia.—In order to carry out fully one of the provisions of the will of the late Dr. Mütter, who, in bequeathing the valuable collection of medical specimens to the Philadelphia College of Physicians, stipulated that a proper room should be provided for them, a third story has been placed on the College building at the northeast corner of Thirteenth and Locust Streets. The additional story covers the whole of the building, its dimensions being fifty-three by one hundred and three feet, and affords ample room for the valuable museum which has hitherto occupied two rooms on the first floor; these will now be devoted to the purposes of the library.

The height of the story to the peak of the iron roof is forty feet, and about seventy-five feet back from the front an additional story is made, providing three rooms, two of which are on the main floor, one of which is intended for a dissecting room and the other for a study. The room overhead will contain special specimens from the museum. The room is exceedingly well supplied with light, numerous windows piercing the walls on three sides, and a large skylight running along the whole length of the ridge pole.

Around the four sides of the room a gallery runs, and the cases containing the specimens will line the walls, and are approached from the main floor and from the gallery. An iron and marble staircase runs from the ground floor to the additional story, and an elevator, conveniently located, designed for the careful conveyance of specimens to the rooms, is also provided. At the south end of the room is a spacious fireplace, which is ornamented with a handsome stone mantel. Hot air will be used to heat the building. Efforts have been made to have the building as nearly fireproof as possible, and, in addition to the non-burning material already mentioned, the floors are of brick and covered with tiling. The cost of the improvement was about $28,000.

The Austrian Medical Association.—The Austrian Medical Association, which now comprises twenty-six branches, with a total of 4500 members, recently held its seventh annual meeting at Innsbruck, and resolved to petition the Government to make vaccination obligatory throughout the empire by imperial statute, also to restrict the privilege of private practice to medical men who have already served in a hospital. The Association expressed an opinion that considerable changes were desirable in the regulations concerning the training of medical students; and, lastly, a request was preferred that a law should be made assigning substantial pensions to the widows and orphans of medical men who might meet with their death through attending to their duties during an epidemic.

Dangers of Water Gas.—A committee of the Medical Society of the County of Albany, New York, have recently presented to that body a report on hygiene, of which the concluding paragraph reads as follows:

It must be admitted that water gas, with its thirty per cent., more or less, of carbonic oxide, is a more dangerous substance than coal gas with its five to seven per cent. of carbonic oxide, and that the only question that can be raised is, "how much practical importance is to be attached to this poisonous character?"

Professor Henry Morton says that the burning of water gas produces fifty per cent. more carbonic acid gas than

is produced by the burning of coal gas; hence the air becomes sooner vitiated with water gas.

Upward of fifty deaths were reported in New York, from water gas, from October, 1878, to January, 1883; six in Toronto; eight in Brooklyn.

About one-half of the gas used in New York is water gas, Brooklyn uses it largely, and many other cities. Albany is soon to be supplied with it.

Massachusetts has a law prohibiting the sale of gas containing above ten per cent. of carbonic oxide; New Jersey makes the limit two per cent.

Brooklyn coal gas contains 7.9 per cent. of carbonic oxide; its water gas 28.25 per cent.

Activity of the New York Health Department.—Dr. Cyrus Edson, of the Health Department, has seized and condemned 5280 gallons of wine at a factory in the lower part of the city, and asked the authority of the Board for its destruction. He reports that the wine is made by macerating low grades of dried fruits in water, fermenting the product, and then adding four or five grains of salicylic acid to the pint as a preservative. Dr. Edson believes the wine to be deleterious to health, in which opinion he is supported by other officials of the Board; and the matter has been referred to the counsel for the Department and Sanitary Superintendent.

The Danger of Wakes.—An instance of the reckless practice of holding wakes was recently reported to the coroner of Dublin. A physician stated that he found a number of men, women, and children assembled at a wake in Blackhall Street, Dublin, where two children had died of malignant scarlet fever. The coroner made an order for immediate burial, and dispensed with the holding of an inquest.

Appointment of a Commission on the Mode of Capital Punishment.—The New York legislature, at its recent session, passed a law of considerable general interest. It provided for a commission to investigate and report to the legislature, on or before the fourth Tuesday of January, 1887, "the most practical and humane method known to modern science of carrying into effect the sentence of death in capital cases." The following persons were appointed commissioners: Elbridge P. Gerry, of New York City; Dr. A. P. Southwick, of Buffalo; and Matthew Hale, Esq., of Albany. This law is the outcome of a determined effort on the part of many citizens to have a competent commission investigate and see if a better method of inflicting the death penalty than hanging could be devised. There is no public sentiment in New York averse to the infliction of death as a punishment for murder, but hanging is repulsive for many reasons. The Medico-Legal Society has discussed the subject, and many methods have been proposed in place of the scaffold and noose. The report of the commission will be awaited with considerable interest.

Duhring's "Treatise on Diseases of the Skin" has just been published in the Russian language. This is an additional compliment to a Philadelphia author, whose work has already appeared in two editions in English and has been translated into French and Italian.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 27, 1886.

Law, Homer L., *Surgeon U. S. N.*—Ordered before the Retiring Board December 2, 1886.

Lippincott, Geo. C., *Passed Assistant Surgeon U. S. N.*—Ordered before the Retiring Board December 6, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 23 TO NOVEMBER 29, 1886.

Irwin, B. J. D., *Lieutenant-Colonel and Assistant Medical Purveyor.*—Relieved from temporary duty in New York City, and of the charge of the Medical Purveying Depot in that city, and ordered to San Francisco, Cal., to take charge of the Medical Purveying Depot in that city.—*S. O. 270, A. G. O.*, Nov. 19, 1886.

Town, F. L., *Major and Surgeon.*—Ordered from Fort Clark, Texas, to Post of San Antonio, Texas, to relieve Surgeon J. P. Wright.—*S. O. 159, Department of Texas*, Nov. 15, 1886.

Gibson, Joseph R., *Major and Surgeon.*—Ordered for duty as Post Surgeon at Fort Logan, Col.—*S. O. 134, Department of Missouri*, Nov. 20, 1886.

Mosely, E. B., *Captain and Assistant Surgeon.*—Relieved from duty as Attending Surgeon in San Francisco, Cal.—*S. O. 99, Division of the Pacific*, Nov. 19, 1886.

Mosely, Edw. B., *Captain and Assistant Surgeon.*—Directed to take charge of the Medical Purveying Depot, San Francisco, Cal., until the arrival of a proper bonded officer.—*S. O. 99, Division of the Pacific*, Nov. 19, 1886.

Powell, J. L., *Captain and Assistant Surgeon.*—Ordered from duty as Post Surgeon at Fort Supply, Indian Territory.—*S. O. 134, Department of Missouri*, Nov. 20, 1886.

Egan, Peter R., *First Lieutenant and Assistant Surgeon.*—Assigned to duty at Fort Clark, Texas, Nov. 22, 1886.—*S. O. 162, Department of Texas*, Nov. 22, 1886.

Wakeman, Wm. J., *First Lieutenant and Assistant Surgeon.*—Leave of absence extended three months.—*S. O. 274, A. G. O.*, Nov. 26, 1886.

McCaw, W. D., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two months, to take effect when his services can be spared.—*S. O. 274, A. G. O.*, Nov. 26, 1886.

Walker, Freeman V., *First Lieutenant and Assistant Surgeon.*—Assigned for duty at Fort McIntosh, Texas.—*S. O. 159, Department of Texas*, Nov. 15, 1886.

Clendenin, Paul, *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered to report to Commanding General Department of Texas for assignment to duty.—*S. O. 271, A. G. O.*, Nov. 20, 1886.

Johnson, Henry, *Captain and Medical Storekeeper.*—Will, in addition to his present duties, assume charge of the Medical Purveying Depot in New York City, as Acting Assistant Medical Purveyor.—*S. O. 270, A. G. O.*, Nov. 19, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING NOVEMBER 27, 1886.

Williams, L. L., *Assistant Surgeon.*—Granted leave of absence for twenty-four days, to take effect when relieved Nov. 15, 1886.

McIntosh, W. P., *Assistant Surgeon.*—Granted leave of absence for twenty-seven days, Nov. 26, 1886.

Norman, Seaton, *Assistant Surgeon.*—When relieved, to rejoin station (New York); granted leave of absence for twenty-three days, Nov. 27, 1886.

The Medical News *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the News *should be addressed to No. 1004 Walnut Street, Philadelphia.*

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. XLIX. SATURDAY, DECEMBER 11, 1886. No. 24.

ORIGINAL LECTURES.

ON THE TREATMENT OF PLEURISY WITH EFFUSION BY HAY'S METHOD.

Abstract of a Clinical Lecture
Delivered at the Hospital of the University of Pennsylvania, December 2, 1886.

BY WILLIAM OSLER, M.D.,
PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA.

GENTLEMEN: You have had in the ward classes during the past month, several interesting cases of pleurisy, which have familiarized you with the clinical history and physical signs of the disease, and I shall, to-day, first direct your attention to certain points in the plan of treatment which we have followed. Let me briefly summarize the history of the cases.

CASE I.—A. B., aged twenty-three; admitted on the 21st. He had been a healthy man. Three days before admission he was caught in a rain-storm and remained all day in his wet clothes. The following morning he had pain in the head, neck, and right side; in the latter situation the pain was of a sharp, stabbing character, and increased by drawing a deep breath. He had fever, lost appetite, had also a sore throat and diarrhœa. When admitted the face was flushed, the respirations 34 in the minute, pulse 100, and temperature 101°. He lay on the left side. Examination showed deficient expansion on the right side, with jerky, inspiratory movements. There was a distinct friction fremitus to be felt and heard below the right nipple, and there was slight dulness in lower axillary and infrascapular regions. On the fourth day the temperature was normal, and there were signs of effusion to the level of the fifth rib.

CASE II.—J. M., aged twenty-four, a well-nourished young man, was admitted on November 12th. In 1883 he was poisoned with arsenic, and is now ataxic, the result, apparently, of a peripheral neuritis. His present trouble began three weeks before admission. Four or five days after exposure to cold and wet, he felt a pain in the right side and had a cough, with fever and occasional sweats. He did not go to bed, but gradually got short of breath, and for this symptom he sought relief at the hospital. Shortly after his admission I called your attention to the characteristic physical signs in this case. The effusion was in the left side and reached as high as the lower border of the second rib. The heart was displaced and there was an impulse near the right nipple. You saw him in clinic two weeks ago to-day.

CASE III.—William G., aged twenty-three, admitted to the Philadelphia Hospital October 12th with shortness of breath. He had been ailing for seven weeks. Had never had a chill or pain in the side. Had been feverish at times; had sweated and had been gradually getting short of breath. Though not able to work, he kept about and had not been in bed. There was left pleural effusion with absolute dulness reaching to the clavicle and displacement of the heart to the right; with the hypodermic needle the fluid was determined to be serous. He had been drinking before admission, and for nearly ten days there was mild delirium tremens.

The effusion in these cases varied from the slight amount in Case I., which would probably have disappeared in time without medication, to the large exudation in Case III. filling the side of the chest. In treating pleuritic effusion we have to choose between medicinal and operative measures, and these cases illustrate the rules which I have already laid down for your guidance. In the first two cases the symptoms were not urgent, the condition of the patients good and the duration of the disease not prolonged. In Case II. we were in doubt whether or not to aspirate, as the line of dulness reached to the second rib; but I am glad we decided to try first the effect of medicines.

Now the usual routine in treating pleural effusion is to give purgatives, diuretics, and diaphoretics, but the plan to which I wish specially to call your attention this morning is the use of concentrated solution of saline cathartics introduced by Professor Mathew Hay, of Aberdeen. We have employed his method extensively in dropsies from various causes and with very satisfactory results.

Dr. Hay found, when investigating the physiological action of saline cathartics, that if the salt was given in a very concentrated form, when the intestines of the animal contained very little fluid, it produced a very rapid concentration of the blood owing to the abstraction of water to form the intestinal secretion excited by the salt. If the saline was not given in concentrated form or was administered at a time when the bowel contained much liquid, the action upon the blood was very slight. The effect is very rapidly produced; in one instance, in a man after giving six drachms of sulphate of soda, the number of blood corpuscles per cubic millimetre rose from 5,000,000 to nearly 7,000,000, owing to the great loss of liquid in the free purgation. A few hours later this increase was no longer apparent, as the blood had rapidly abstracted the tissue fluids and so replaced the amount lost. You know that the pinched, shrivelled aspect of a person who has had a severe choleraic attack is due in large part to the absorption of the tissue lymph to supply the rapid waste caused by the liquid stools.

It is on this principle that the use of cathartics in dropsical effusions is based, and Hay's method is new only in the application. In the administration of the salt, the solution must be concentrated, and taken at a time when there is very little fluid in the intestines. Our usual plan is to order the patient to take nothing after the evening meal, and then, an hour or so before breakfast, the salt is given dissolved in as little water as possible. The sulphate of magnesia is preferable to the sulphate of soda, as it is more soluble. Four or six drachms in an ounce of water is the usual dose, but two ounces, or even more, may be given. The patient must not drink after it. This usually produces from four to eight

watery stools, without pain or discomfort of any sort. It very rarely disagrees, though you remember in the case of Mrs. C., the patient with extensive anasarca from Bright's disease, we had to give up this plan on account of the vomiting it induced. Dr. Hay calls attention also to another point which we have repeatedly verified, namely, that the salt acts also as a diuretic. He found experimentally that the blood underwent a second concentration, not so marked, but lasting for the greater part of the day, and this he rightly attributed to the diuretic action of the absorbed salt.

Case II. is a striking instance of the value of this plan of treatment. Two weeks ago I demonstrated to you that the fluid reached as high as the third rib, and was rapidly subsiding. He has been given every second morning, since his admission on the 12th, half an ounce of sulphate of magnesia in an ounce of water, and, as you can see by the chart, this has produced from three to nine watery stools. His diet has been restricted somewhat in liquids, but he has had no other medicine. We find now, on examination, good expansion on the left side; the heart has returned to its normal situation; on palpation a distinct friction can be felt in the axillary region; tactile fremitus is present; on percussion the note is clear in the antero-lateral regions, and posteriorly it is resonant almost to the base; the breath sounds are heard well over the whole side, with the exception of the extreme base, where they are still feeble. The patient was discharged the day before yesterday to go on duty as night watchman on the surgical side. We may regard this as an exceptionally good result. It is the third instance in which I have seen a large effusion disappear rapidly treated by Hay's method.

Exudations of less extent will sometimes disappear in a few days. Case I. we saw early in the acute stage, and, to relieve the distress, he was wet-cupped with marked benefit. This is a measure which I do not often employ, as I find that morphia subcutaneously fulfils the indication; but here the pain was rapidly relieved and the breathing became much quieter. The effusion in this case reached only to the fifth rib. He had four or five doses of the concentrated saline solution, and was freely purged. To-day there is scarcely a trace of fluid, and you notice that, on percussion, the lung is clear almost to the extreme base.

In Case III. saline cathartics were also employed, but other and more prompt measures were indicated. The left chest was full, the percussion note on the clavicle was absolutely flat, and the fluid had been accumulating for at least seven weeks. Under such circumstances the withdrawal of some of the fluid was imperative. It is a good rule to aspirate when the fluid reaches the second or third rib. The removal of from twenty to thirty ounces will often suffice, and you can trust to medicines to remove the balance. When you find the fluid at the level of the clavicle, aspirate at once, as connected with this condition there are certain dangers which we cannot ignore. Such patients are liable to sudden and alarming attacks of dyspnœa. This occurred in Case III., and my house physician, Dr. Donohue, wisely withdrew at once between two and three pints of fluid. There are instances, also, of sudden and fatal collapse under these circumstances. Such a case occurred last spring in the Philadelphia Hospital, when I was on duty for my colleague, Dr. Tyson. A woman was admitted, stated to be suffering with pneumonia. I saw her for a few minutes at the conclusion of my visit, and made a rather hasty examination, and determined the existence of dulness on the left side. She died suddenly and unexpectedly the next day, and, to our mortification, we found the left chest full of fluid, the lung greatly compressed, and the heart pushed far over. We could not determine the cause of the sudden collapse, but I feel certain it might have been averted by timely aspiration.

In Case III. we would not trust to the saline cathartic alone as the patient's general condition was not good. He was aspirated twice subsequently, and had an occasional morning purge. At present he is convalescent, has gained in weight and strength, and although there is still dulness at the left base, I believe it is due chiefly to thickened pleura and not to fluid.

My experience with this method is sufficient to justify a strong recommendation of its merits. In the general dropsies—renal or cardiac—the results have been equally good. There have been failures, to one of which I have already referred, and I have on several occasions heard complaints of nausea following the strong and bitter solution. In another case, last summer, the patient, a young man, thought the daily purgation and a rather dry diet terrible hardships, and he escaped from the hospital.

The essence of the method lies in getting the strong salt into the intestine at a time when the fluid contents are scanty. The concentrated bitter solution excites a copious secretion from the intestinal glands, which distends the intestine and induces rapid peristalsis. Saline, as well as other purgatives, have long been employed in the treatment of dropsies, but this plan of Hay's is so simple, produces so little irritation, and at the same time acts powerfully, and, as you have seen, effectually, that with us it has superseded other methods in cases in which we wish the action of a powerful and prompt cathartic.

ORIGINAL ARTICLES.

LAPAROTOMY AS A DIAGNOSTIC RESOURCE.[1]

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During the last century medicine has been slowly but steadily rising from the lower level of the arts and gradually assuming its place among the sciences. Empiricism has gradually given way before logical deduction; the dogmas of the schools and the dicta of the masters have gone down before clinical research and experimental demonstration; and the theorist of the closet and the bookworm of the library have been replaced by the chemist, the anatomist, and the microscopist.

Up to this period the opinions of the masters were all powerful; since that time abstract principles have become worthless: facts capable of demonstration to our senses rule the hour and control professional thought. As this salutary change has developed, every observer must have been struck by the fact that one of

[1] An essay read before the New York County Medical Association.

its chief factors, and, at the same time, to a certain degree, one of its direct results, has been the great development of the art of diagnosis accomplished by the subordination of theoretical methods of exploration and investigation to those which are purely physical.

Our knowledge of diseases of the chest entered upon the road to rapid advance under the influence of percussion and auscultation; of affections of the larynx under that of the laryngoscope; of those of the eye under that of the ophthalmoscope; and cutaneous diseases are only now fully experiencing the great boon of the microscope. For diagnosis instruments of precision have done fully as much as clinical thermometry has accomplished for the practice of medicine, the microscope for minute anatomy, or medical chemistry for the clinical study of renal disorders.

Some philosopher has said that if to-day the production of iron were suddenly to cease society would at once and rapidly retrograde, and in a few centuries would have reached, in its downward progress, the level which it occupied in the bronze and stone ages. That this bold and comprehensive postulate is correct no reflective mind will, I think, be inclined to doubt. It is equally true that, if the instruments of precision just mentioned were taken away from medicine, our art would steadily go backward until it reached the level of empiricism which it occupied in the days of Rhazes, Hally-Abbas, and Avicenna.

What I have said, so far, is prefatory merely to the proposition that if we are in our day to advance in the art of diagnosis there is but one avenue open to us—that which leads directly to the subordination of theory to fact; which replaces abstract surmise, however ingenious and plausible it may be, by physical demonstration, and which substitutes the blunt evidence of our senses for the most polished processes of ratiocination.

Throughout the domain of surgery there is no field in which diagnosis is more surrounded with difficulties that that of abdominal neoplasms. This is due to three facts: first, the superposition of the intestines; second, the great thickness to which the abdominal walls commonly attain; and third, the accumulation of gases in the intestines, which increases all preëxisting difficulties of exploration. Previous to the time when antiseptic precautions rendered the opening of the peritoneum a safe and warrantable procedure, even when the case was not one of life and death, the diagnosis of abdominal tumors was allowed to rest upon deductions capable of being drawn from rational and physical methods, the latter of which were limited by the abdominal walls without and the pelvic roof within. To day, surgeons devoting themselves to this department of our art fully agree as to the propriety of opening the abdominal walls for the purpose of exploring the viscera fully by touch, and, to a limited extent, by sight.

It appears to me that no more important era has of late years marked the advance of abdominal surgery than the general recognition of the fact that when doubt exists as to the diagnosis of abdominal neoplasms or the significance of certain pathological conditions within the peritonum, the question at issue should be settled by explorative incision. So fully am I individually convinced of the propriety of this practice that, were I called upon to select a motto for the walls of a hospital devoted to abdominal surgery to-day, I should, without hesitation, select this one: "When a doubt as to the diagnosis of an abdominal neoplasm of serious character or of certain obscure pathological conditions of the abdominal cavity which threaten life exists, give the patient the benefit of explorative incision." And this mural legend should always stand before the eyes of the doubtful diagnostician, that it might prove a constant reminder of a most important duty.

After an experience yielded by seven or eight hundred cases, approximately, of laparotomy for various causes, extending over a period of twenty-three years, I am very sure that I can say with entire truth that I have never once regretted opening the abdomen, and that I have in a dozen cases, at least, deeply regretted having failed to do so. It is in my mind certain that in the future explorative abdominal incision will become the rule in all cases of the following conditions which do not yield to medical means, and concerning the etiology of which there is great doubt: first, wounds and injuries of the abdominal viscera; second, intestinal obstructions; third, the presence of stones in the gall-bladder or kidneys; fourth, the accumulation of blood, pus, or serous fluid from any cause; fifth, the existence of a neoplasm in any part of the abdomen; sixth, the occurrence of serious organic changes in certain of the viscera of the abdomen, such as the kidneys, the uterus, the Fallopian tubes, the ovaries, or the spleen; seventh, ectopic gestation.

It is a remarkable fact, and one which constantly excites the wonder of the uninitiated, how grave errors of diagnosis in reference to abdominal tumors are made by men of the largest experience, the maturest judgment, and a life-long devotion to the work of gynecology. The truth is, that all over the world, errors in diagnosis in the field of abdominal tumors are, and probably will forever be, common, unavoidable, and, except in rare cases, entirely excusable. He who declares that he does not frequently err belongs to one of two classes: that of those who lack the intelligence to appreciate their shortcomings or the courage to confess them, for it is only the good diagnostician who can afford to own to diagnostic errors, or to that of those who by *suppressio veri* or *suggestio falsi* are short-sighted enough to hope to deceive the community which watches their careers.

It is for the purpose of avoiding such errors that explorative incision is peculiarly valuable. It may be that there is doubt as to whether a neoplasm is a fluid tumor of the ovary or a solid one of the uterus; or whether an abdominal dropsy is due to incurable hepatic disease, or to some tumor no larger than an apple situated deep down in the pelvis; or as to the benign or malignant nature of some growth about which nothing positive can be settled. In such cases the results of opening the abdomen are most striking and gratifying; they beam upon the

existing obscurity as the rays of an electric light upon previous darkness, and even although the result of the incision may serve to assure us merely that death will very soon close the scene, this certainly is better than the cruel uncertainty which previously existed, and the grief of relatives is assuaged by the feeling that "no stone has been left unturned" to procure a relief which science is powerless to bestow.

I know of no way in which I can better convey my views and give my experience upon this subject than by mentioning first some cases as examples of the class in which I have had to regret non-interference on my part, and then relating others in which more active measures have produced happier results.

Case I.—About seventeen years ago I was called to Fordham by the late Dr. Wohlfarth, to see a strong, healthy young coachman, about twenty-five years of age, who had been suddenly seized with obstruction of the bowels, which had resisted all medical means, and which was, evidently, going to result fatally. The abdomen was immensely distended, and, except when under the influence of opium, the patient suffered great agony. The question of laparotomy was carefully canvassed, and, unfortunately, we decided not to perform it. The patient died, and, on a post-mortem examination, a loop of intestine was found constricted by a false membranous string, the result, probably, of some long-past peritonitis. This, as was apparent as soon as the abdomen was opened, was the sole cause of the obstruction, and could at once have been overcome by the snip of a pair of scissors. At that time laparotomy, had it failed, would have met with universal condemnation; we probably lacked moral courage to meet the issue, and we let the poor fellow die, "hoping aginst hope," for a relief which became less and less likely to occur with every hour that elapsed.

Case II.—About fifteen years ago, Prof. F. N. Otis asked me to see, with him, a woman who for years had suffered from a uterine fibroid. This had gone on growing until, when I saw the patient, it weighed forty pounds. It filled the whole abdomen, and pressed so much upon the viscera under the diaphragm that it was evident that the patient would soon be exhausted unless the neoplasm was removed. The question of extirpation of the tumor was carefully considered, and the decision was left to me. At that time the operation was very rarely performed, and still more rarely was it successful. I decided against operation and the patient died. Upon autopsy, a tumor weighing forty pounds was found, entirely unattached, in the peritoneal cavity, and connected with the uterus by a pedicle not larger than the ring and middle finger placed side by side! Removal would have been easy, and recovery would have been likely; but, influenced by the spirit of the times, which frowned upon the removal of large, solid tumors of the abdomen, the operation was not put at the patient's disposal. An explorative incision would have made the practicability of the operation quite evident.

Case III.—In the early part of my experience as an ovariotomist, a lady, suffering from a very large abdominal tumor, called upon me, with the statement that she had consulted the three most eminent operators living in this country at that time; that they had all agreed that her tumor was a solid one connected with the uterus, and had all advised against operation. Before deciding fully to abide by this advice, she had come to consult me. After a careful examination I agreed to the opinions already expressed. The patient went home, and in about a year died. Upon post-mortem examination the neoplasm was found to be a multilocular ovarian tumor, entirely free from adhesions, with a small pedicle, which could have been removed with every prospect of success. The reasons for the obscurity of the diagnosis were the following: the tumor was composed of innumerable small cysts; the walls of these were thick, and the fluid within them colloid.

Case IV.—During the early portion of my service as visiting physician to Bellevue Hospital, a strong and healthy young Irishman was brought into my service suffering from intestinal obstruction. This resisted all the means that could be resorted to except only laparotomy, and this, after careful consideration with some of my colleagues, was rejected. The man died, and upon post-mortem examination the following very curious condition of things was found to exist: the transverse colon, at its middle, was distended into a kind of a sac, which was filled with hardened fecal matter, held in an indissoluble mass by a quantity of hay, such as is fed to horses, which penetrated it in every direction. It is certain that, upon abdominal section, this would have been readily discovered, and it is probable that, by a process of kneading, it could have been dislodged and pressed onward toward the rectum. I made every effort to find out what could have induced the man to swallow the hay; all that I could learn in explanation was that he was subject to periodical debauches, during which he did the most extraordinary things. His friends thought that during one of these, either upon a bet or from mere bravado, he had swallowed the hay, although they had no positive information about the matter.

Case V.—I was called in great haste to see, in consultation with three other physicians, a nulliparous lady who, after having suffered from absence of the menstrual discharge for three months, was suddenly taken with severe abdominal pain, faintness, and exhaustion. Physical examination, which could be practised only at great disadvantage, revealed the presence of an obscure, fluctuating mass in the pelvis. I was convinced that the case was one of extrauterine gestation, which had resulted in rupture of the fœtal nidus and in hemorrhage, and I urged the propriety of explorative incision. My colleagues differed from me in diagnosis, and another physician was added to the consultation. At our final meeting the vote stood two in favor of laparotomy and three opposed to it. The patient died, and upon post-mortem examination a three months' fœtus was found in the Fallopian tube, at its fimbriated extremity. The amniotic sac was unbroken, but a slight rent had occurred in the muscular covering of the sac, which had opened an artery of sufficient size to cause death by hemorrhage in the three days which elapsed

between the inception of the accident and the fatal result.

I regret to say that I could more than double the number of cases illustrating this part of my paper, but I will not tax the patience of the Society by doing so. In my own defence, I will remind my hearers that almost all of this variety of my cases occurred fifteen or twenty years ago, and that this number of years, so rapid has been the recent advance of abdominal surgery, carries us back into the ancient history of the subject. Few such cases occur to me now, for the very reason that I am a strong advocate for explorative incision as a diagnostic resource.

Turning now to more pleasant recollections of my past experience, I will give a few cases illustrative of the brilliant results which commonly attend upon the practice of explorative incision as an aid to diagnosis. I ventured to number the unfortunate results which have occurred in my experience from a neglect of resource. Were I to record even a tithe of the cases in which life has been saved by a resort to it my time and your patience would alike be exhausted.

Case VI.—A patient was brought to me for abdominal dropsy, for which paracentesis had been repeatedly practised, and in whose pelvic cavity a solid tumor, the size of the adult head, could be distinctly felt. This was regarded as a large uterine fibroid, the presence of which had induced ascites, and the removal of which was regarded as entirely impracticable on account of the weak and exhausted condition to which the patient had been reduced. I proposed explorative incision, agreeing with the relatives that I would be governed by the light which this shed upon the case as to my subsequent action. As soon as my hand passed into the abdomen what before was obscure became perfectly plain. The abdominal fluid was not the result of ascites, but was ovarian fluid poured forth from a ruptured ovarian cyst, which, in its collapsed state, now occupied the pelvic cavity, giving rise to the belief that it was a fibroid. The operation for the removal of the sac was an exceedingly simple one, and the patient made a rapid recovery.

Case VII.—An unmarried woman was sent to me by Dr. Woodward, of Brandon, Vermont, for almost complete amenorrhœa and such agonizing pains at menstrual periods that the most powerful anodyne medicines were inadequate for her relief. Upon vaginal examination what appeared to be a uterine fibroid as large as a goose's egg, could be felt on each side of the uterus and filling the iliac fossæ. The patient's family were told that a positive diagnosis was impossible without explorative incision, and this was made. Upon introducing my hand the tumors were found to be due to excessive distention of the Fallopian tubes with blood, constituting perfect specimens of hemato-salpinx. The overdistention of these muscular canals gave rise to the sensation of solidity. Both tubes, with their corresponding ovaries, were removed, and the patient was entirely cured.

Case VIII.—This case I record as illustrating the fact that cases of abdominal tumor are sometimes utterly beyond the realm of diagnosis. Mrs. W., a woman of forty-five years, had been married fifteen years, but thought that she had never been pregnant. Early in married life she was supposed to be so, but she had never miscarried, and never borne a child. She came to me with a cyst the size of the head of a child a year old, and a hard round tumor which I supposed to be a calcareously degenerated fibroid behind the uterus. In three months from the time when I first saw her she fell suddenly into an almost collapsed state, and suffered greatly from pain in the tumor, which nearly doubled in size in a day or two. Her condition became so desperate after this that I operated to give her the only chance for life which presented itself.

A large blood cyst was emptied, and from the distended pouch of Douglas I shelled out the skull of a fœtus of probably six months' of intrauterine life. She had suffered fifteen years before from abdominal pregnancy; the child had died, and all but the skull had disappeared by absorption.

The patient did well until the sutures were removed on the tenth day, when she developed cardiac thrombosis, and died of it. The sudden increase in the size of the tumor and the accompanying collapse, were due to hemorrhage from the cyst wall.

Case IX.—Some years ago I removed from a lady in Brooklyn two large ovarian sarcomas. She recovered and went to Oswego to live. About three months afterward she was taken with constipation, which soon ended in complete obstruction. The patient was thoroughly convinced that I had occluded the intestines by encircling them with a silver wire, and I went to Oswego to see her in consultation with her physician, Dr. Clark. She had not at that time had an alvine evacuation for a fortnight. I at once performed laparotomy, and found a considerable portion of the large intestine encircled by a malignant mass, probably sarcoma. The whole peritoneum was studded with the same. The wound was closed and the patient died at the end of a month.

There is one class of cases in which in my hands explorative incision has yielded such brilliant results that, even with the fear of making my paper too long, I shall devote full consideration to it. I allude to cases of ascites in the female.

This condition is universally regarded both by the medical profession and by the public as a prognostic sign of the gravest significance and most important bearing. This is true of the condition whether it presents itself as an independent, isolated, and perhaps entirely solitary pathological state, or as one secondary to dropsy of the extremities beginning in the face or in the feet. But it is to dropsy limited to the peritoneal cavity that my remarks in this connection will have reference.

It is a clinical fact which teachers might well impress upon the minds of students as an elementary axiom that there are three great sources of dropsy: first, dropsy due to disease of the heart, which first gives evidence of its existence by œdema pedum; second, dropsy due to disease of the kidneys, which first marks its access by œdema in the areolar tissue beneath the eyes; and third, dropsy due to organic

disease of the liver, which causes accumulation of the watery elements of the blood within the peritoneal cavity. To all general rules in medicine, as elsewhere, there are exceptions, but there are few to this one; or at least I should say that my personal experience leads me to believe so.

The causes of ascites may thus be enumerated as to frequency of occurrence:

1st. Organic diseases of the liver.

2d. Chronic peritonitis.

3d. Tubercular peritonitis.

4th. Malarial spanæmia accompanying great splenic enlargement.

5th. The existence of neoplasms within the peritoneal cavity.

6th. The prolonged existence of excessive fecal impaction.

All these conditions, except the last, will so readily be admitted as common factors of the great symptom of which we are speaking that no special allusion to them will be necessary. The last will not be admitted by those who have not had personal experience of it. I will merely say that I have had such experience, and that I am as perfectly convinced of the truth of my sixth proposition as to etiology, as I am to that of the five which precede it.

Of these causes of ascites but one concerns us here; the existence of neoplasms within the peritoneal cavity. This class of causes will, as to its authenticity, be disputed by no one. We see it in rare instances active with all varieties of solid tumor of the uterus and of fluid ones of the ovary. This is so well recognized as a fact, that it requires no further consideration at my hands, so far as the general proposition is concerned. The special proposition which I would make in reference to it is this, that some cases of excessive ascites, which by repeated tappings prove fatal, are due to insignificant uterine or ovarian tumors, which are too small for recognition, unless specially and carefully sought for, and the removal of which relieves the fluid accumulation which by its exhausting influence destroys life.

These tumors are sometimes no larger than small apples, and cannot be recognized except by the careful examination of an expert. In stout women, or even in those that are thin, after accumulation of ascitic fluid, they cannot be discovered even by a master in diagnosis. And, as I have had sufficient evidence in my experience, in some cases even when a tumor in the pelvis, as large as a cocoanut coexists with ascites, no connection between the two pathological conditions as cause and effect are ordinarily traced by the medical attendant.

Should this be the case, should the existence of the neoplasm not be detected, or should its malign influence not be appreciated even when its presence has been diagnosticated, but two resources present themselves to the physician: First, to cause absorption of the effused fluid by pressing into action the three great emunctories of the body, the skin, the kidneys, and the alimentary canal; second, to remove the fluid by aspiration or by tapping. The first of these usually fails. If it does not fail, the cause of the symptom remaining after the symptom itself has been removed, frequently repeated resort has to be had to the plan, which in time impairs nutrition and exhausts the vital forces.

If tapping or aspiration is employed "the beginning of the end" soon shows itself; the practitioner has early demonstrated the converse of the old Hippocratic maxim "causa sublata tollitur effectus," and it becomes merely a question of time how long the system of the patient will bear the exhausting drain to which it is exposed.

I have met with a number of cases in which I have succeeded in completely curing aggravated cases of ascites, after tapping had been repeatedly resorted to, and after all hope of recovery had been given up.

I shall not weary the Society by a report of all these, for proof does not consist so much in a long array of cases as in the portrayal of a few select and characteristic instances which clearly point out the pathological conditions which have been assumed as factors, and give evidence of the restoration to health effected by their removal.

Case X.—Mrs. C., of Durham, Conn., came to me about ten years ago suffering from ascites, for which she had been repeatedly tapped, and from which she was rapidly growing weaker; so that death at an early period seemed certain. After each tapping a round hard tumor about as large as the head of a five year old child, could be readily detected in the pelvis, and this could be obscurely felt even when the dropsical effusion existed.

I opened the abdomen as an explorative procedure, and finding a fibroid attached to the fundus uteri, removed it. The patient is perfectly well today, the dropsy having immediately disappeared.

Case XI.—Mrs. B., of Canada, came to me with ascites, which was accompanied by the presence of a solid tumor over one ovary, as large as a cocoanut. She had been tapped once only. I removed a solid tumor of the left ovary, and she entirely recovered, and has remained free from dropsy for two years.

Case XII.—About a year ago Dr. Hurlburth, Jr., of Stamford, Conn., sent me a patient suffering from ascites, in whom I could detect, by vaginal touch, what seemed to be a pelvic neoplasm. I made an explorative incision, found a tumor in Douglas's pouch no larger than an apple, which I removed, and the patient recovered from the operation and from the abdominal dropsy. The tumor, examined by Dr. Coe, Pathologist of the Woman's Hospital, was pronounced sarcoma. I have just received the following report of the case from Dr. Hurlburth: "Since the operation the patient has been perfectly comfortable, but now a hard tumor can be felt occupying the pelvic cavity, and ascites is gradually beginning again to demonstrate its existence."

It is highly probable that without removal of the malignant growth the case would long ago have ended fatally.

Case XIII. was a counterpart of Case III., except that the post-uterine tumor was a benign fibroid attached by a rather slender pedicle to the posterior wall of the uterus. The patient, who was an inmate of the Woman's Hospital, left that institution at

the end of a month well; but since that time I have lost sight of her.

It is very difficult indeed, I may say impossible, to tell why in a certain small number of cases these tumors create ascites while in other cases they may occupy the peritoneal cavity for years, without causing any such trouble; but that such is the fact is beyond question.

Case XIV.—I saw some years ago, with Dr. Emil Noeggerath, a lady who suffered from severe enteralgia, which was created by the presence of an ovarian cyst as large as an adult's head, which was so migratory in its nature that it could be pushed anywhere in the abdomen from the pelvic roof to the diaphragm. As there was no urgency in the case, and as the patient and her friends dreaded surgical procedure to a morbid degree, we decided to avoid interference. Fourteen years passed and I was again called in counsel by Dr. Noeggerath. The tumor was only about double the size which it had been fourteen years before, but its nomadic tendencies had created ascites, which was greatly distressing the patient, who now clamored for relief by surgery. I assisted Dr. Noeggerath in the removal of a monocyst with the longest pedicle that I ever saw in an ovarian tumor. The patient rapidly recovered, and has been ever since free from ascites.

It is rare to find even a monocystic ovarian tumor running so long a course; but I have removed one which had lasted for twenty-four years, another of sixteen, and another of nine years' duration.

In Dr. Noeggerath's case doubtless the extreme mobility of the cyst had a great deal to do with the resulting irritation of the peritoneum, and the development of dropsy. Such a complication of ovarian cysts is extremely rare.

This array of cases represents just about half of those that I have seen which serve to illustrate this point. It appears to me that resting for justification upon them, I may assume the position that in cases of ascites in the female, before the patient is relegated to the usual practice of repeated tapping with its universally barren results as to cure, the most thorough investigation as to the possible existence of small neoplasms as important pathological factors should be made, and if signs of their existence be obtained, explorative incision should be practised as a "forlorn hope" that relief may be obtained. That brilliant results will often occur I do not maintain. But that they will do so with a frequency sufficiently great to make it a duty to give the plan a claim to consideration, I positively assert from the experience which I here place on record.

There are but two points connected with explorative incision which I would mention before closing. The first is the singular, and to me inexplicable fact, which I think every man of large experience will substantiate, that in certain cases of abdominal incision in which diagnosis only is practicable, and others in which removal of the tubes and ovaries proves to be impossible, great improvement sometimes results to the patient's general and local condition, from the explorative effort alone.

The second point which I would mention is the necessity for certain rules which should be observed in the performance of this simple surgical procedure.

RULES FOR EXPLORATIVE INCISION OF THE ABDOMEN.

1st. Every explorative incision should be made under the strictest antiseptic precautions. As to strict cleanliness all are agreed; if antiseptics of chemical character are valueless, they at least, in all probability, do no harm; while the question as to their utility is "sub judice," give the patient "the benefit of the doubt," and employ them.

2d. Always employ an anæsthetic, lest the complaints of the patient should frustrate the investigation, or at least render it superficial and uncertain.

3d. Always make an incision which will admit the whole hand; one which will admit two fingers only is hardly warrantable. If possible, let but one man's hand be passed into the abdominal cavity; in a multitude of counsel there is, in these cases, danger. The brain which guides the hand should be competent for deciding the question at issue.

4th. Never hurry an explorative incision, but never prolong one unnecessarily; let discussion as to diagnosis occur after the peritoneum is closed, not while it is open; and let the fact be appreciated that the clinical lecture, which is so common at this moment, is always a source of great danger.

INFLUENCE OF THE RECENT EARTHQUAKE SHOCKS IN CHARLESTON UPON HEALTH.

By F. PEYRE PORCHER, M.D.,
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In addition to the natural alarm and fright—especially among women and children—caused by the recent calamity, where so many persons were suddenly brought face to face with death under the most appalling circumstances conceivable, and in every variety of situation and condition, I have gathered the following facts from personal observation and inquiry. They are interesting because rather unique in our experience in this country.

As the result of the shocks, some persons were instantly attacked with nausea accompanied by vomiting, which recurred or persisted in several cases for days.

Mrs. M. was nauseated during the first shock (Aug. 31) and had repeated attacks afterward, with vomiting and nervo-electrical disturbance. Miss M. was nauseated at the first vibration, and before she could leave her chamber. Mrs. K. was absent Aug. 31, but in all the subsequent shocks she suffered from giddiness, with a feeling as if the floor was trembling under her feet, and experienced "instead of sadness, a tendency to laughter." There was no tingling or electrical disturbance. She was nauseated but once. Mr. S. and Mr. H. had nausea, and both had colic and diarrhœa following, on the night of August 31. Mrs. G. suffers from extreme nausea after every shock. She was sound asleep after the second shock (Friday, 28th Sept.), yet woke up nauseated. I could give numerous examples of a similar character.

Mrs. M., Mrs. S., and Mrs. D., experienced for a long time a feeling, whether real or imaginary, of

tremors—as if the floor or the earth were incessantly moving under their feet. Similar sensations were felt by persons living in the country. Many of those residing on the coast declare that delicate and almost imperceptible vibrations are constantly felt. Mrs. C., living some distance from this city, experienced a sensation "as if she was suspended in mid air." One of my patients, Mrs. B., remarked, "The earthquake leaves you powerless; a flush and tingling come on before a shock—the whole body pulsating, with tears; everybody cried on account of pain in their knees and legs!" Mr. F. informs me that he would constantly anticipate the recurrence of shocks by his sensations—nervousness, tingling, etc. Two young gentlemen, on the islands eighty miles from Charleston, had their eyes suddenly filled with tears (Aug. 31), not to be repressed, but not caused by alarm, or fears for their personal safety; for the danger there was not imminent. These examples could be multiplied by the relation of others, if more extensive inquiries were made.

The commotion, attrition, and tremblings of vast masses of earth might not only squeeze out water, sand, and gases, but very naturally generate electricity on a tremendous scale which would affect those who were specially sensitive.

I have the statements of many persons, that they experienced decided electrical disturbances, which were repeated upon the successive recurrence of the shocks. These were generally tingling, pricking sensations, like "needles and pins," affecting the lower extremities. A few may be cited: Judge ——, in a town far removed from this city, immediately after the great shock, inquired of Mr. A. "How do you feel?" The reply was, "As if pricked by needles and pins!" To which he rejoined: "That is precisely my experience!" The Rev. ——, when asked as regards the effects produced upon him, stated that it was "an electrical thrill—after and with all the shocks: exactly what he had before experienced in his frequent use of the electric battery." His sister was similarly affected. Mr. S. feels the nervous sensation *before* the shocks occurring at night—never in the day.

A child of one of my patients would give immediate notice of the approach of a shock, night or day, but oftener at night, by calling aloud; being far more keenly alive to them than the adult members of the family, or than his mother, who generally kept awake. The inability to move his leg, caused by a recent sprain of the knee from which he suffered, was greatly increased after each occurrence of shocks. His leg would then remain stiff and contracted. Another, Mr. B., assures me that he could always anticipate and know of the approach of a shock by his peculiar nervous electrical sensations. Miss K. says she could feel the effects of the shocks "beginning in her big toe" and extending with a tingling sensation upward. One gentleman has been completely relieved of his rheumatism; another, who for months was nervous, depressed, and entirely unable to attend to any business, has regained his former activity and energy through the influences generated by the repeated convulsions of nature.

A gentleman on a visit to Columbia, awakening from a dream, experienced such sensations as to inquire whether a shock had not just occurred; his daughter replied affirmatively, and "that every thing was electrified!" In another individual (Dr. F. informs me) the vibrations affected his dreams, and upon awakening he would announce what had occurred. In a recent attendance upon Mrs. D., she stated that on three occasions *before* a shock occurred, she became dizzy and sick, and grasped a post or other convenient object for support.

With regard to my own experience: Whilst seated in the N. E. R. R. depot, awaiting the arrival of friends, the great earthquake disturbance occurred, when the foundations of the earth were felt to move and surge under our feet. This drove us out of the room and across the open street. I sought the protection and support of a telegraph pole on the opposite pavement in order to avoid the flying horses and vehicles, which could scarcely be seen through the sudden darkness—not wholy caused, I think, by the dust, which latter attracted the attention of every one. In this position I was not conscious of the second shock, except that I experienced suddenly, great *nervous exhaustion* about the back and loins, and a sensation almost of pain. I am convinced, upon reflection, that it was wholly electrical, and similar to that experienced by others. I was not nervous, or particularly sensitive to the danger, as I wrote letters, and slept the remainder of the night, in a four-story brick dwelling which had lost every chimney, and was otherwise rent and injured. On another occasion, whilst engaged in adjusting a bandage for a fractured clavicle in a girl, aged thirteen, a pretty severe vibration occurred; I remained ("*impavidum ferient ruinæ*"), but the patient fled!

The following appeared in the *News and Courier* of a recent date:

"The concurrent testimony of the most trustworthy experiences indicates that there is an electrical accompaniment to the earthquake, whether as cause or effect. A lady, while she was in the market, felt the same tingling nervous sensation which she experienced during the disturbance on the night of Aug. 31st; she was again seized with the same sensation, but in a more pronounced degree. The electricity appeared to permeate her whole body, which was affected just as it would have been by the continuous discharge through her system of the fluid from a galvanic battery."

I have seen in my own practice two cases of miscarriage and one of premature birth, and have heard of several others, consequent upon the earthquake—though no special inquiries have been made.

Several cases of mental disturbance, owing to anxiety and prolonged loss of rest, some of them persistent, have occurred in my own experience. One of these has not yet recovered her sanity. Exposure in tents and to the weather has been productive of much general ill consequences as was natural,—namely: Catarrhal fevers, bronchitis, and an aggravation of lung diseases generally, and of those dependent on derangements of the nervous and uterine systems. Several persons have, by reason of the successive shocks, been reduced to a highly nervous condition, where their emotion could not

be repressed. Dr. F., of Georgetown County, reports two such persons who will require to be sent to a more quiet abode. One of these occurred in an active, strong, hardworking man, who was not unnerved by the first commotion, but who had finally to succumb, with his nerves completely shattered. He confessed with pain and mortification the deplorable state to which he had been reduced. Hysterical attacks have also been developed in those previously well.

The most important premonitions of the great movement of the earth were three: 1. Almost entire absence of storm, thunder, lightning, and other electrical disturbances during the entire summer, with a very prolonged drought, which still continues. 2. A peculiar appearance of the sky and the atmosphere on the evening of August 31, observed and commented on by several persons. Very bright orange sunsets still prevail (Nov. 18). 3. Very oppressive heat and sultriness experienced by every one just before ten o'clock P.M., August 31. The smell of sulphur and gas was plainly observed after the convulsion of nature. This was also noticed by those on the incoming train of the N. E. Railroad, and was probably caused by the emanations from the extensive marshes of this region. With the exception of a little sulphur in the "green sand," that substance does not exist in the geological formation; one hundred to one thousand feet of marl underlie the superficial strata. Notwithstanding, a strong smell of sulphur is repeatedly observed before and after each shock by many residents of the coast near Georgetown, as I am credibly informd.

One lady of very delicate nostril—"*femina emunctæ naris*,"—whom I attend in Summerville, where the premonitory rumbling and terraqueous disturbances are more marked, experiences a sensation of the smell of "sulphur and rhubarb" *before* each shock.

Dr. A. A. Moore, of Camden, S. C., in his report to the State Board of Health, September 23d, speaking of the effects of the earthquake shocks, says: "They at first naturally created much consternation among our population, and have undoubtedly had a very deleterious effect upon sick and feeble persons, being followed by much nervous prostration and other unpleasant symptoms. Even upon well and robust people their effects have been striking in some instances. Some have described their sensations as being similar to those experienced after a shock from an electric battery. Others have experienced a very marked feeling of debility in their lower extremities; others have had vertigo, nausea, etc. Some, again, who were not affected by these unpleasant symptoms in the beginning, are now troubled by them."

Dr. H. M. Stuart, of Beaufort, also reports that "It was a curious fact to note the number of persons, both male and female, particularly females, who were nauseated by the shock of the earthquake. This, I suppose, is attributable to fear, but these persons, although acknowledging themselves frightened at first, disclaimed any fear during the subsequent shocks, and continued to suffer from nausea. In a few other cases the effect of the nervous shock from the above cause was of a much more serious nature. In one case—that of a young lady—it caused hysterical convulsions."

It is several years since I read the *Kosmos*, but, if I remember rightly, Humboldt remarks therein on the "headache" and other morbid sensations which were experienced during the prevalence of earthquakes.

Domestic animals seemed to be exceedingly sensitive. Dogs howled, poultry were unusually noisy, and horses greatly alarmed. I give one instance which occurred to-day (December 2d). A very intelligent dog belonging to Mr. W., walked into the breakfast room about 8 A.M., got up from the fireplace, before which he had stretched himself, went into a corner of the room, and remained there trembling and shivering. His master remarking that the animal was mad, his little son, who had a similar experience previously, replied, "No; it is an earthquake." The true explanation was in a few moments realized in a well-developed trembling.

The same dog in awakening his master, who was asleep in a hammock during the disturbance of August 31st, nearly tore off his clothes, so great was his excitement.

ANTIPYRINE AND ARSENIC IN THE TREATMENT OF MALARIAL FEVERS.

By DAVID B. FRONTIS, M.D.,
of Wadesboro, N. C.

The physicians who practise in malarious districts, not rarely meet with a class of patients suffering from malarial fever in some of its forms, who from idiosyncrasy or from some complication of the case cannot take quinine or any derivative of cinchona bark.

Within the past four months I have met with cases manifesting this peculiarity in intermittent, remittent, and a more indistinct type, generally classed here as simple malarial fever. Having during the past twelve months used the new antipyretic—antipyrine—with most gratifying results in phthisis, I determined to try it in this class of malarial troubles, using it to control the pyrexia, and putting the patient on full doses of arsenic to counteract the malaria.

Numerous notes on the value of antipyrine in various febrile affections have appeared in current medical literature during the past year. The fullest record of clinical experience with the drug, that the writer has seen, is Dr. Reilen's article in the *Deutsches Archiv für klin. Medicin.* This is a report of the use of antipyrine in the Nuremburg City Hospital, on eighty-nine patients suffering from eighteen diseases. There is only one case of intermittent fever in the list, and no special remarks on this. Nothing seems to have been written on its use in malarial fevers, perhaps, because we have in quinine a remedy as specific as we can ever hope to have, and also because it was soon found that antipyrine probably possesses no curative value in any disease, but is simply a very potent antipyretic.

When debarred from the use of quinine, the phy-

sician has a long list of remedies which are more or less useful, arsenic, calomel, chloroform, capsicum, ipecac, rhubarb, etc. Arsenic, however, stands at the head. While Bartholow, Wood, and Stillé, in their respective works, all speak of the use of arsenic in malarial affections, Brunton, in his recent work on *Therapeutics, Materia Medica, and Pharmacy*, gives it the highest testimonial:

"Arsenic is a powerful antipyretic, nearly rivalling quinine; it seems less serviceable than quinine in well-marked cases of ague, but it is sometimes as good or even better than it in the irregular malarious manifestations." (Page 609, *op. cit.*)

This more nearly accords with the general estimate placed upon it by Southern physicians. Another testimonial from high authority which seems to cover the class of cases that I am speaking of, is from Dr. Solis Cohen (*Maryland Medical Journal*, Feb. 6, 1886.), who in considering some of the forms of malarial manifestations and their treatment, maintains that "when the most prominent symptoms are connected with the nervous system . . . arsenic is indicated."

I shall here relate the clinical history of a few cases in which I combined these two remedies, antipyrine and arsenic, omitting, however, minor symptoms and complications, and the measures used to meet them.

Case I. *Intermittent Fever, Quotidian Type.*—Adult, male, had chill at 8 A.M., July 10, second paroxysm followed by moderately high fever. Saw patient at 12 M., temperature 101.5° F.; fever had already begun to decline. This patient, quite an intelligent man, refused to take quinine or any derivative of cinchona, because it produced an eruption, which he described as "terrific" and far worse than ague. More to test its effect than because he needed it, I gave fifteen grains of antipyrine and directed that he take five drops of Fowler's solution every three hours for the next four days, and if the paroxysms were arrested then to continue it *t. i. d.* for several days longer, cautioning the patient to omit it for twenty-four hours if there should develop much swelling of the eyelids. Also left a fifteen grain dose of antipyrine to be given next day if there should be much fever. Patient reported a few days later that the antipyrine acted promptly in reducing fever. There was a slight chill next day, with a rise of fever, which was promptly checked by the antipyrine. After this no more symptoms of the ague. No unpleasant effects from the arsenic.

Case II. *Remittent Fever.*—Adult, female, seen August 14th, temperature 102.4° F. Previous history of a remitting fever of three or four days duration. She had been taking from four to six grains of quinine per day. She objected strongly to taking quinine in increased doses, from the cerebral excitement which it produced, or, as she expressed it, "it made her crazy." I prescribed, however, twenty-five grains in divided doses in twenty-four hours. Next day I was hastily summoned, and found her madly delirious, with a temperature only 101.5° Morphine to quiet delirium, ten grains of antipyrine to reduce temperature, one dose per day, and five drops of Fowler's solution, every four hours, from 6 A.M. to 10 P.M. Fever disappeared in four days, but convalescence was not complete for two weeks.

Case III. *Remittent Fever, Bilious Type.*—Adult, female, seen August 20th. This patient had fever for three days with a morning temperature of from 102° to 102.5°; evening from 103° to 104.8°. Took thirty grains of quinine a day. At 4 P.M., evening of third day, temperature 104.8°. Had given forty grains of quinine this day with not the slightest decline in fever. Conjunctiva injected, some delirium. Gave fifteen grains of antipyrine, at 5 P.M. temperature 103,° gave fifteen grains more of antipyrine. Shortly after this profuse diaphoresis was set up, and at 6 P.M. temperature was 98.5°. Stomach had been very irritable for three days, but patient now took some nourishment and passed a quiet night. Gave no more quinine or antipyrine, as there was no return of fever. Patient was up in her room in a few days, but in just one week there was a relapse. I then gave from fifteen to twenty grains of quinine every forenoon, and one dose of fifteen grains of antipyrine every afternoon. Temperature varied from 100° to 101.5° A.M. to 102° to 103° P.M. Antipyrine invariably caused a reduction of from two to three degrees, and there would not be a subsequent rise until the next morning. This attack lasted one week, and as the patient could not be induced to take quinine when there was no fever, was followed by another relapse. The same treatment was followed as in the last attack with the addition of five drops of Fowler's solution *t. i. d.* This was kept up until convalescence was complete.

Case IV. *Malarial Fever.*—Adult, female, temperature varied from 100° to 103°, with irregular exacerbations. Seen first July 19th. Twenty-five grains of quinine were given per diem for one week, until temperature did not exceed 100° at any time during the day. There was great nervous excitement. Patient had not slept for several days and nights, with the exception of short naps induced by one-eighth of a grain doses of morphia. The bromides and chloral had no effect whatever. I then gave five drops of Fowler's solution every four hours, and directed that fifteen grains of antipyrine be given whenever the temperature went to 101°. Nervous symptoms abated, appetite improved, and there was some return of strength. Temperature did not decline further, but on the fourth day of this treatment began to rise, and on the evening of the sixth went up to 102.5°. Went back to quinine, giving thirty grains from 6 A.M. to 12 M., and from ten to twenty grains of antipyrine every afternoon. Fever showed no disposition to yield at all, and quinine was gradually increased until sixty grains per diem were reached. Patient complained of very little deafness until this dose was reached. This was the eighteenth day of the treatment, and the twenty-first of her sickness. This dose was given for two days, with the effect of bringing the highest temperature marking down to 101.5°. Antipyrine was discontinued on the sixteenth day. It always produced a profuse perspiration, and seemed to depress the heart so much that I was afraid to use it any longer. After exhibiting sixty grains of quinine for two

days. the dose was reduced five grains a day until twenty-five grains were reached. After the middle of the fourth week temperature never went above 100°, but did not remain at the normal until the end of the sixth week. When quinine was resumed in this case, it did not produce the nervous excitement that it caused at first, even when one drachm daily was given.

In Case I. it might be objected that it was quite a mild attack, and the arsenic would have done just as well without the antipyrine. Probably it would, but if ever I have to treat a severe attack of intermittent in this patient, I shall have great confidence that I can keep his temperature under control with antipyrine until the arsenic shall have eradicated the malaria.

In Case III. the action of the antipyrine, in bringing the temperature to normal so promptly, was wonderful. Can we explain it by supposing that the quinine administered had already destroyed the malarial poison, but that the heat centre in the medulla remained so perturbed that the temperature did not decline until there was direct action upon this centre by the antipyrine? This may have been a coincidence, but the result was certainly most gratifying. I was strongly impressed that this case was about to assume a pernicious character, from the condition of the conjunctivæ and the delirium.

Case IV. is reported because in this instance the combined action of antipyrine and arsenic was not gratifying. The nervous symptoms quickly disappeared, although the fever did not subside, but rose again in a very intense form. Hence, it is important to recognize that this is not a specific treatment. But from these cases and a number of others in which I have used antipyrine and arsenic—when quinine either could not be used at all, or when it was best to suspend its use for a few days—I am convinced that the combined use of these two drugs meets a want that has long been felt by those who have much malaria to treat.

I have never seen any rash caused by antipyrine. Occasionally its administration is followed by nausea. I usually exhibit it in solution in ice-cold water. Given in this way the bitter taste is very transient. If ice water is not convenient it is best to give the drug in capsules.

It should not be forgotten that apart from the causes that may induce it, fever may be a source of great danger in and of itself. This is especially true of the hyperpyrexia of malarial fevers. The physician who has ever seen an ordinary case of intermittent or remittent suddenly take on the pernicious type, has a wholesome dread of this catastrophe. It is to be hoped that some one will soon try the virtue of antipyrine in a pernicious case, and report the result.

In children the effects of antipyrine in reducing malarial pyrexia are even more happy than in adults. Restlessness and tendency to convulsions caused by the fever are quickly replaced by quiet repose and slumber. So striking is the change that the physician is liable to be misled and think it permanent, but as soon as the effects of the antipyrine wear off, unless the cause has been removed the same threatening symptoms reappear.

Inasmuch as we do not yet know definitely what malaria is, it is impossible to explain the action of these remedies in the treatment. Fothergill says of arsenic, "it is a powerful alterative; it procures more perfect elimination of waste, and so more perfect nutrition of the body." (*Handbook of Treatment*, page 76.) This is about as definite an explanation as has been attempted.

It is possible that antipyrine, in addition to its well-known apyretic effects, has an action in malarial pyrexia that is especially indicated. Dr. Beyer (*American Journal of the Medical Sciences*, April, 1886, page 397), quoting Bettelheim, says "that the reduction in temperature, following the administration of antipyrine, is due to its causing a dilatation of the peripheral vessels and a contraction of the vessels of the viscera." In malarial fevers the congestion of the viscera is an important factor to be considered.

"No intelligent practitioner can watch a patient during the cold stage of a malarial paroxysm without realizing how important the attendant congestion is as a pathological state. . . . . The blood driven from the surface and extremities must be accounted for elsewhere, and the amount of blood which is lost from one part of the circulatory tree, must correspond with that accumulated elsewhere." (*Pepper's System of Medicine*, vol. i. page 605.)

This is preëminently the condition in the cold stage of intermittents, but exists, although in a less degree, in the continuous fever of remittents, as evidenced by the usual symptoms of portal congestion, congestion of the kidneys, or enlargement of spleen. Hence antipyrine fulfils an important indication outside of its specific influence on temperature. Dr. Beyer (*op. cit.*) sums up his own conclusions on the physiological influence of antipyrine in this sentence: Antipyrine, though largely dilating the veins, increases the power of contraction of both auricles and ventricles, and has no injurious influence upon the blood nor the muscular tissues, and, therefore, possesses all the good qualities of a perfect antipyretic.

Unfortunately my own clinical observations do not bear out this high testimonial of Dr. Beyer, that it increases cardiac impulse. There is generally some reduction in the frequency of the pulse corresponding to the reduction in temperature, but the former is by no means always proportionate. When the profuse perspirations caused by antipyrine come on in a case where vitality is already depressed, there may be alarming weakness of the heart. A case in point can be found reported by Dr. W. M. Welch, in The Medical News, January 2, 1886. While I think these cases will be found the exception in treating malarial fevers, they must not be forgotten.

HOSPITAL NOTES.

The Treatment of Rheumatism in the New York Hospitals.

new york hospital.

Dr. George L. Peabody treats his cases of acute rheumatism with a combination of salicylic acid and

iron, the formula for which was obtained in the following way:

About a year ago a nurse was pouring into a common receptacle some remnants of different medicines, when she noticed that a black precipitate formed by iron was turned into a transparent solution of a rich red hue as soon as she poured in the fluid contents of another bottle. Being a young woman of an inquiring turn of mind, she asked the house-physician the cause of this phenomenon. The house-staff, to help her in her desire for information, experimented with the drugs that she had been throwing out, and ascertained that her manipulation of chemicals had been this: She had first poured into the receptacle a solution containing salicylic acid. Into this she had poured a solution of iron, with the result of producing a black precipitate. To this she had added some sodium phosphate, with the result of producing a clear red solution.

This at once gave a clew to the means of combining iron and salicylic acid without forming a precipitate. The facts were submitted to the apothecary of the hospital, and from them he produced the following formula, which has been in constant use for nearly a year:

R.—Acidi salicylici	gr. xx.
Ferri pyrophosphatis . . .	gr. v.
Sodii phosphatis	gr. l.
Aquæ	℥ss.

This method of giving this drug in rheumatism has now been fairly tested. It may be said to agree as well with the stomach as any other, and it has the great advantage of not being followed, even if its use be long continued, by the severe anæmia that so often follows the use of salicylic acid, if it be given without iron.

The dose which is described in this formula is given every two hours until improvement justifies a diminution in the frequency, or until constitutional effects are pronounced.

Dr. Peabody has tried antipyrin in several cases of subacute rheumatism without satisfactory results; but has had too little experience with it thus far in acute rheumatism, for the cure of which it has such high celebrity in Germany, to speak from personal knowledge in regard to it.

There is nothing, beyond these trifling details, at all peculiar or out of the common way in the treatment of acute rheumatism at the New York Hospital.

BELLEVUE HOSPITAL.

Dr. A. L. Loomis recognizes in the treatment of acute articular rheumatism two classes of patients, the anæmic and the non-anæmic or robust. This distinction is made with great care, and, in cases of doubt, patients are usually treated as belonging to the first class.

The treatment employed with the robust patients is as follows: Salicylate of sodium in thirty-grain doses is given every two or three hours, according to the severity of the symptoms, until its effects are marked by decided ringing in the ears. The intervals between the doses are then increased to four or six hours, and its use is continued until the acute symptoms have subsided, and the articular inflammation is quiescent. When the salicylate is decreased, the administration of the sodium bicarbonate is begun, in doses of twenty to thirty grains every four hours. It is rapidly pressed until the urine gives a decided alkaline reaction with litmus paper. Every passage of urine is tested, and the soda is used throughout the acute course of the disease in quantities sufficient to maintain its alkalinity. In the earlier stages, and later if necessary, the pain is controlled by hypodermatics of morphia, and the bowels are kept freely moving by the use of Rochelle salts. The affected joints are wrapped in cotton sufficient to maintain a uniform temperature. The body is clothed in flannel, and great care is exercised to avoid exposure—examinations of the heart being avoided so far as possible. As soon as the temperature reaches normal, or nearly so, the patient is put upon iron and cod-liver oil. If fever runs very high it is controlled by aconite.

In the anæmic cases the salicylate is not given at all. The use of the alkalies is begun at once, and the amount graduated by the same test of the urine. Tincture of aconite in the liquor ammoniæ acetatis is used both to control the fever and as an anti-rheumatic, but its use is discontinued when the acute symptoms have subsided. In these cases cod-liver oil and iron are given in large doses from the very first, and continued for some time after recovery seems complete. Tr. opii deodorata is used for pain in these weaker cases, and the joints are protected as before; even more care is given to protecting the patient and avoiding exposure.

In all cases patients are put upon a milk diet throughout the entire course of the disease.

Oleum gaultheriæ has been used in a few cases, with marked success in some. It often relieves the distressing symptoms with surprising rapidity, but it is uncertain in its results, and its use has been attended at times with severe delirium and alarming symptoms of poisoning. It is seldom employed now.

Although salycilic acid is used in robust cases, its effects are believed to be such as favor cardiac complications.

ST. LUKE'S HOSPITAL.

During the past six years several methods of treatment of acute articular rheumatism have been carried out under Dr. Kinnicutt's personal observation in the wards of St. Luke's Hospital, and the effects carefully observed. Dr. Dechilly's and Dr. Herbert Davies's methods of encircling the limbs just above the affected joints with blisters have afforded more or less relief of the articular pain, much less prompt, however, than that obtained by the use of the salicyl compounds; the duration of the disease, and the implication of the peri- and endocardium, have not been apparently affected. Dr. Harkin's suggestion of applying large blisters over the præcordial region alone, has given wholly negative results, and the substitution of other treatment has invariably been rendered necessary.

In the winter of 1882, Dr. Kinnicutt introduced the treatment of acute articular rheumatism by the oil of wintergreen, a methyl ether of salicylic acid. The mode of administration consisted in giving the oil in fifteen or twenty minim doses in sealed capsules, or floated on water or milk, at intervals of two hours, to the extent of two and a half to three drachms in the twenty-four hours. The initial dosage was maintained during the first week of the disease, and then, in the absence of arthritic pains and fever, gradually diminished until the daily amount was reduced to one drachm, which was

continued throughout convalescence. With the establishment of convalescence, some one of the various preparations of iron invariably was combined with the above treatment, and during this period exposure, exercise, and dietetic errors were carefully guarded against. For the joint stiffness, which frequently persists after the disappearance of pain, the salicylate of lithium, to the amount of forty to sixty grains daily, in divided doses, was not infrequently found to give greater relief than was attainable by a continuance of the oil of wintergreen. The results obtained by this method of treatment were sufficiently favorable to warrant its continued use since that date. The average stay in the hospital, in a number of cases thus treated during the winter and spring of 1882, was twenty-four and one-third days, which average has since been closely maintained.

On account of the rapid elimination of the various salicyl compounds, their effects are of comparatively limited duration. The maximum benefit obtainable from their use in acute rheumatism will therefore be found, he is convinced, in conforming the doses to the rate of elimination, in so far as is possible.

The only other method of treatment which has been used in Dr. Kinnicutt's wards is the combination of alkalies with a salicyl compound. The rule has been to give indifferently the oil of wintergreen, salicylic acid, or its sodium salt, in one-half the customary daily amount, combined with four drachms of the sodium bicarbonate, or the potassium citrate in the twenty-four hours. Their use has been continued, in diminished doses, throughout convalescence. The mixed treatment has been found equally efficient with that of the salicyl compounds alone, in controlling the arthritic symptoms and the fever. Believing that the use of the salicyl compounds, when begun at the onset of acute articular rheumatism, affords a limited protection to the heart, a larger number of cases than are yet at his disposal are necessary to permit an expression of opinion in regard to a greater efficiency of the *mixed* treatment in averting cardiac complications.

Dr. Beverley Robinson treats the cases of rheumatism which come into his hands as follows: If the bowels are not freely open, the patient is first given a mild mercurial purge, such as calomel gr. x, with sod. bicarb. gr. x. After this has operated, if the disease is acute, ol. gaultheriæ gtt. xv, q. 2 h., ten doses daily, is prescribed; the diet is usually restricted to milk and farinaceous food. If necessary, a small dose of morphine is given to relieve the pain.

If the patient has been suffering for some weeks before coming under observation, and the disease has become subacute, sodii salicylat. gr. xx, s. q. 6 h., is prescribed; and if anæmia also exist, iron is given. In these cases the diet is usually not restricted.

In chronic cases, especially those in which only one joint is affected, and the disease is not of gonorrhœal origin, the salicylate of lithium, in doses of gr. x–xv, repeated three times daily, together with tonics, and a nourishing diet, seems to give the best results. Many chronic cases are also benefited by fixing the joint for several weeks by means of plaster bandages, and after these have been removed, by daily applications of faradism to the joint. In all cases where there has been much thickening of the parts in and about the joint, repeated blisters have been found of great service.

In the cases of gonorrhœal rheumatism which have been under his observation, quinine and potassium iodide, with tonics, have yielded good results. The local treatment of the affected parts was the same as described above—*i. e.*, fixation and, later, faradization.

Ingenious Method of Extracting a Cockle-Bur from the Larynx.

Dr. D. B. Crawley, of King, Mississippi, writes us that recently a negro boy, aged nine, was brought to him with a cockle-bur lodged in his larynx. His voice was almost gone, and respiration was much interfered with. With his finger introduced well down the throat, Dr. Crawley could feel the bur. Having no instruments at hand, he wrapped some cotton around the end of his right index finger, which he then passed down to the bur, and by a rotary motion he sought to entangle in the cotton the prickles of the bur, and thus withdraw it. After several attempts he succeeded in extracting the bur by this ingenious method.

MEDICAL PROGRESS.

Therapeutic Uses of the Hot Bath.—Dr. W. J. Notley writes as follows in the *Lancet* of Nov. 13, 1886:

Some time ago an opportunity was afforded me of making some observations on the effect of the hot bath in removing some morbid conditions of the system. A man of middle life, in temperament nervous-sanguine, spare, and somewhat below the average height and weight, complained of languor, debility, want of energy, and lowness of spirits. On examination it was found that his heart and arteries were sound, though his circulation was rather weak. His alimentary system was fairly good, though the quantity of food taken was below the average. His skin was somewhat dry, and a few spots of psoriasis were found on the extensor aspects of the legs, arms, and trunk. His urine was clouded with phosphates, and below the average in quantity. As the Turkish bath was not in this case available, he was advised to take a water bath at a temperature of 105° F., and directions were given him how to proceed in case of faintness. The day after taking the bath, his condition was wonderfully improved. His circulation was stronger, his urine was clear, and he now felt cheerful and well. This improved state of matters continued for about twelve days, when all the unpleasant symptoms reappeared, and he began to feel as ill and dejected as ever. The most natural proceeding was, of course, to order him another bath, and this he took with the same happy result as before. Since that time he has had the hot bath about once a fortnight, and by this means has managed to keep himself in very tolerable health and spirits.

It would be interesting to know the exact means by which the hot bath produces this powerful and beneficial effect on the system. It must, in the first place, be carefully borne in mind that the warm bath at a temperature below 100° F. has no influence that can be compared with the results to be obtained from the hot bath. The hot bath stimulates the whole system, and the effect of this stimulation appears to last for some

time, for the patient above referred to remained well for about a fortnight after taking the bath. Having ascertained that his diet was as nearly uniform as possible, the quantity of urea excreted on three successive days immediately before and after the bath was estimated by Russell and West's method, with the following result:

Average quantity of urine in 24 hours for 3 days *before* the bath	916.67 c.c.
Average weight of urea in 24 hours for 3 days *before* the bath	22.8 grms.
Average quantity of urine in 24 hours for 3 days *after* the bath	1040 c.c.
Average weight of urea in 24 hours for 3 days *after* the bath	26.25 grms.

From this it appears that the quantity of urine and the weight of urea excreted were below what are usually stated to be the averages for a healthy man, but that both were very perceptibly increased by the hot bath. If we may assume that the other secretions and excretions were proportionately increased, then we have clear evidence as to the proximate cause of the improvement brought about in the general condition of the body.

As in most other remedies, so in the case of the hot bath, the time and manner of application are of some importance. Like all other baths, the hot bath should be taken before the principal meal of the day, and if this meal be taken early, the good results will be more certain than if it be taken late. The duration of the bath should be about fifteen minutes, and the temperature should be about 105° F. If faintness should come on while in the bath, the whole head should be immersed in the hot water, and kept there for a few seconds, when the faintness will disappear. The usual directions given in public baths are to get out of the bath as soon as drowsiness or faintness begins, and to ring for the attendant; but anyone who attempts to do this will most certainly aggravate his danger. As pointed out some time ago by Mr. Benham, and subsequently by myself, the application of heat to the head is a most potent means of averting syncope. From time to time we hear of deaths in the warm bath; and I am convinced that many of these might have been prevented by the adoption of the simple method referred to, instead of the deadly and often impossible means commonly recommended.

Chromatic Asymmetry of the Iris a Symptom of Neurosis.—Ch. Féré classifies eyes as brown, blue, green, and gray; in the first can be distinguished red, orange, and yellow; in the second blue and indigo: in the third no pure color, but portions which appear bluish; the fourth are not a mixture of black and white, but often blue, violet, and green, the gray eye is that in which the color is undecided.

Varieties of color are due to varied refraction of light caused by different dispositions of the anatomical elements of the retina, and not by a particular pigment.

Varieties of tone are very numerous; they are three in each color, dark, intermediate, and light. They are probably dependent upon refraction, some have thought them caused by the varying thickness of iris pigment.

The iris presents three concentric zones for observation—external, middle, internal; of which the middle is generally light, the inner dark; the degree of dilatation of the pupil affects the color of the iris; it follows that eyes should be observed equally well dilated and from the same distance.

In addition to changes in eye colors caused by light, age, and race, there are differences which are symptoms of pathological conditions. The examination of 600 subjects, healthy, insane, idiotic, epileptic, and hysterical, showed that those diseased possessed a larger proportion of light eyes than the healthy; this was especially evident with the hysterical.

Asymmetry of color, when not dependent on morbid local conditions, is very rare; in over 600 subjects only seven were found in which such asymmetry was present, and these patients were imbecile, hysterical, or epileptic.

Asymmetry of tone is not rare, especially among the neurotic; in 75 cases in 100 of facial hemiatrophy or hemiparesis, with or without epilepsy, the iris of the side affected was darker in tone than the other.

In epileptics 26.7 per cent. had this symptom, 62 out of 76 hysterical patients; in choreic patients, those with obstinate facial neuralgia and with sciatica, chromatic asymmetry was observed.

Chromatic asymmetry the author considers a valuable symptom in neurosis tending to become unilateral; with deviation of the pupil it points to congenital lesion.

Chromatic asymmetry, when present with unequal pupils, may aid in diagnosticating hysteria and asymmetric degenerations from locomotor ataxia and general paralysis.

When observed in the children of the hysterical it is a sign of neurotic tendencies, calling for prophylactic treatment.—*Le Progrès Médicale*, September 25, 1886.

Styptic paper, much used abroad, though but little known here, is a new modification of medicated organic matter. It is made by mixing with the paper pulp (during the process of manufacture of this material) some solution of ferric chloride, and carefully drying the product, or, in place of the iron solution, another variety is made with tannic acid. The proportions needed are about one part of iron solution to an equivalent of pulp that will yield four parts of dry product, or, if tannic acid be used, one part of the acid to make eight parts of finished product. When made on the small scale, white absorbent (or blotting) paper may be used and made into a pulp, to which the astringents are added, and then carefully dried. It forms an excellent means of stopping bleeding by simply binding on a small quantity of the prepared paper.—*Pharmaceutical Record.*

Citrate of Iron Hypodermatically.—In anæmia occurring during pregnancy, caused by metrorrhagia, and from other causes, Chiara found that ten centigrammes of ferric citrate in one gramme of water might, with advantage, be injected deeply, twice daily, in the gluteal region in cases where the stomach had refused to tolerate iron.

Microscopic examination of the blood showed the red corpuscles greatly increased, and rapid cures followed. —*L'Abeille Médicale*, October 11, 1886.

Horseflesh and other Meats as Public Food.—Experiments made by Decroix have shown that horseflesh is a wholesome and available food; that in time

of need the flesh of animals perishing from non-infectious causes may be safely eaten; that, of course, infectious disease makes flesh unfit for food, while the author thinks medicaments have no bad influence. The author thinks that a single meal of the flesh of animals which died of glanders or rabies (as would happen accidentally) would be without injury; the efficient means of destroying most poison is thorough cooking. The author's conclusions are based on the observation of the extensive use of horseflesh in France, and on thorough experiments with diseased meats on the human subject. —*Fortschritte der Medicin*, November 1, 1886.

Hebra's Lotion for Eczema.—

Phenic acid	4 parts.
Glycerine	15 "
Sulphuric ether	15 "
Alcohol	90 "

A mixture to be applied to dry and scaly eczema occurring in plaques, and which gives good results in obstinate cases. Tincture of iodine, applied with a brush, often gives equally good results.—*L'Union Médicale*, November 6, 1886.

Syphilitic Albuminuria.—Horteloup, in an extended article, reaches the following conclusions:

1. Syphilis, in the first months of its appearance, can occasion albuminuria, which is easily curable by antisyphilitic treatment, and leaves no trace.

2. This albuminuria must be distinguished from that which occurs in the second and third years of syphilis, whose prognosis is very grave, for it may be considered the point of departure for chronic nephritis, generally recognized long afterward.

3. A person having syphilis, from the depression the disease always produces, becomes more susceptible to cold, and more predisposed to nephritis resulting from cold.—*Annales de Dermatologie et de Syphiligraphie*, October 25, 1886.

Intrapulmonary Injections.—At the meeting of the Manchester Medical Society on Nov. 3, 1886, Dr. A. Ransome gave the details of one case of gangrene of the lung, and four of phthisis, in which iodoform dissolved in ether, in olive oil, or in oil o eucalyptus, had been employed, the latter vehicle being preferred. The case of gangrene of the lungs was restored to health, the treatment having been very thoroughly carried out. In the phthisical cases, only from two to eight injections had been used in each case, and temporary benefit was obtained in two of them. In one of he others, symptoms of iodoform poisoning had followed an injection, and, in the remaining case, temporary pneumothorax was produced. Hemorrhage from the lung followed one of the injections, in the case of gangrene, but without any bad results.

Tests for Sugar.—Penzoldt describes the two following reactions which are applicable to cane-sugar, to glucose, milk sugar, levulose, maltose, carbohydrates, and to glucosides which yield glucose when treated by sulphuric acid. These tests are applicable neither to inosite, mannite, or quercite.

Treat one-half to two cubic centimetres of the suspected liquid with two drops of an alcoholic solution 15 to 20 to 100 parts alpha naphthol and shake the mixture. A slight cloudiness will result owing to the precipitation of a small quantity of naphthol; add double the volume of sulphuric acid and shake well. If sugar be present an intense violet color appears; on adding water a violet-bluish precipitate appears; this precipitate, soluble in alcohol and ether, colors these solvents yellow, caustic potash dissolves the yellow color.

This test must be made exactly as described; it shows a very minute trace of sugar, and the reaction never results except with sugar, vanilline, anethol, salicylate of methyl, and some other similar products. Substances other than sugar are colored by sulphuric acid alone, while the violet precipitate which results from the dilution of the liquid with water differs entirely from that which results in liquids containing sugar.

If the alpha naphthol in the preceding test be replaced by a solution of thymol of similar strength, the performance of the test remaining the same, a dark red color becoming crimson and carmine results.

The dilution of the liquid gives a carmine tint, a flocculent precipitate is deposited after a little which colors alcohol, ether, and caustic potash a pale yellow as it dissolves, and with ammonia gives a clear yellow. This test is as delicate as that with naphthol.

The urine of healthy persons diluted from 100 to 200 times reacts with this test, but not in greater dilution.

Urea, creatine xanthine, uric acid, allantoin, hippuric acid, succinic acid, phenol, pyrocatechine, and indican do not respond to these tests.—*Annales des Maladies des Organes Génito-Urinaires*, October, 1886.

A Novel Treatment of Phthisis.—Dr. Bergeon, of Lyons, recommends a method of treating phthisis which has, at any rate, the merit of novelty. His plan is to utilize the effects of sulphuretted hydrogen, and this he proposes to do by injecting carbonic acid gas, saturated with sulphuretted hydrogen, into the intestines. If care be taken to secure the absence of atmospheric air, no inconvenience, it is said, results from the injection even of large quantities of the mixture; absorption into the venous system and elimination by the lungs taking place very rapidly. It is claimed for this procedure that, by its means, the use of sulphuretted hydrogen is unattended with any toxic effects, and exerts its influence directly on the lungs themselves. It has been employed in a number of cases at the hospitals of Lyons, Bordeaux, and Paris with great benefit to the patients, even in very advanced cases, and, latterly, similar observations have been made in the consumption hospitals of London, the results of which have not yet been made known. The method has been very much simplified by the introduction of an ingenious but simple apparatus whereby the carbonic acid gas is generated, and saturated with sulphuretted hydrogen, ready for use.—*Brit. Med. Journ.*, November 27, 1886.

Mollin is the name of a potassium soap described by Kirsten, containing a large proportion of fat and glycerine. It is very bland, and takes its name from sapo mollis. Combined with equal parts of ung. hydrargyrum, it is easily and quickly used for inunction. In combination with styrax it is useful in scabies, and is useful as a vehicle for many drugs.—*Centralblatt für die gesammte Therapie*, November, 1886.

THE MEDICAL NEWS.

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SATURDAY, DECEMBER 11, 1886.

THE TREATMENT OF PNEUMONIA.

In this country pneumonia is unquestionably the most serious and the most fatal of the acute diseases. In mortality tables it follows consumption, and causes a larger number of deaths than any one of the eruptive fevers. The statistics of the disease have been elaborately studied, and as Dickson observes, the most remarkable fact they show is "the wonderful equality of proportional mortality—in peace and all comfort; in hospitals of wealthy communities; in the field of destructive war, and in hospitals and barracks, the emphatic seats of destitution, privation, exposure, and neglect." The rate of mortality in the large general hospitals of this country is rarely below—more often above—twenty-five per cent., which represents about the average death-rate from this disease in the Northern and Southern armies during the civil war. In this country extensive statistics of pneumonia in private practice are not available; but in the recent returns of the Collective Investigation Committee of the British Medical Association the mortality was eighteen per cent. We have referred to these figures as indicating the terribly destructive character of this disease, and they may serve to correct an impression which still seems to prevail in some quarters that it is not a very fatal malady.

The treatment of pneumonia has always been influenced by the prevalent notions regarding its pathology, and we are now in an interesting period of transition. So long as the disease was regarded as a local inflammation, antiphlogistic measures were in vogue, of which bleeding and antimony were the most important. The courageous experiments of Skoda and Deitl, in Vienna, and of Bennett, in Edinburgh, taught us the natural history of the disease, and laid the foundation of an expectant, or, better, a rational method of treatment which does not profess to control the course of the malady, but meets indications as they arise and combats the tendencies to death. Of late, the opinion has gained ground that pneumonia is an acute specific fever dependent upon a microörganism, and various antiseptic plans of treatment have been suggested.

We propose to call attention to one or two practical points about which there is a wide difference of opinion among practitioners in this country. There is a tendency at present to revive venesection, and it is important to understand clearly the indications for its practice. Unquestionably prompt and free bleeding is called for in threatened death from asphyxia when the right heart is distended, cyanosis marked, and the pulse becoming small and rapid. The timely abstraction of sixteen to twenty ounces of blood will sometimes save life, though we must confess to some disappointment in the results, for, of five such cases observed, only one recovered. The practice of free bleeding at the onset, which is still employed by some practitioners, is not to be commended, except in rare cases.

In spite of the fact that the leading text-books on practice in this country, and many of the prominent teachers discourage the use of arterial sedatives in pneumonia, they are still most extensively employed. It is true that tartar emetic has lost favor, but aconite and veratrum viride are still favorite remedies, and there are practitioners who claim wonderful results from their use. We have never been able to satisfy ourselves that they have the slightest influence upon the duration of the disease, and, on the other hand, they tend to depress the heart, and may thus be directly injurious if continued for many days. The calomel treatment has been revived of late, but the careful reports from Botkin's clinic, in St. Petersburg, do not indicate that it has any value in controlling the severity of the disease.

Opium in the form of Dover's powder is a most valuable remedy in the early stage of the disease, and was much used in Edinburgh some years ago. It is contra-indicated if there is any tendency to accumulation in the bronchial tubes, but in the painful onset it is often of signal service in allaying the pain and restlessness. We doubt if it has had a sufficient trial in the hands of practitioners.

While many cases of pneumonia do well if carefully nursed and fed, there arise in others two indications demanding the most judicious treatment, viz., high fever and heart failure. So long as the temperature does not rise above 103°, the use of antipyretics is not necessary; but, with a temperature above this, quinine should be given in from twenty to twenty-five grain doses. Antipyrin is not so suit-

able, as it is decidedly more depressing than the quinine, and the same objection holds with thallin and kairin. Repeated cold sponging is a useful adjunct, and in the combination of high temperature with delirium and great restlessness the cold pack is indicated. In the heart failure of which so many pneumonic patients die there is as yet no substitute for alcohol, which, as in typhoid fever, is well borne. Camphor, as a cardiac stimulant, has valuable uses.

The antiseptic treatment of the acute specific fevers is not in a satisfactory state, and has not yet got beyond the tentative stage. Benzoate of soda, phenic acid, iodine, and salicylate of soda, have all been recommended. We have already referred (The Medical News, January 9, 1886) to the good results obtained by Lepine, who injects antiseptic solutions into the hepatized lung. He has again brought the subject to the attention of the profession, and recommends as an injecting solution a mixture of corrosive sublimate, 1 : 5000–50,000 ; salicylic acid and carbolic acid, 1 : 1000 ; hydrobromate of quinine and chloroform, 1 : 2000 ; and bromine, 1 : 10,000. The data are not yet available for a judgment upon this method.

A study of the history of the treatment of pneumonia makes one almost despair of the future of therapeutics, so impossible does it seem to arrive at reliable conclusions regarding the use of medicines. And yet our feelings of despair vanish when we compare the figures of to-day, bad as they appear, with those of the first quarter of this century ; for we then see that there has been in the treatment of pneumonia, as in that of fevers, a steady, progressive enlightenment. The heavy mortality is due largely to the fact that pneumonia attacks with special avidity the aged, the weak, and the dissipated. A study of a large number of autopsies in this disease will show a considerable percentage of persons with serious visceral lesions, particularly of the kidneys, and these circumstances we must take into account in estimating the value of treatment. This disease in drunkards swells enormously the bill of mortality in the city hospitals, while in private life it is in this climate the acute affection to which the aged succumb in large numbers.

A NEW INDICATION FOR LAPAROTOMY

Schultze, in a recent number of the *Deutsche medicinische Wochenshrift*, records a remarkable laparotomy done by himself for the purpose of removing the body of a uterus that was septically infected by the decomposition of a retained placenta. The woman, who had a uterus bicornis, had been delivered, without difficulty, of a fœtus at the seventh month of pregnancy, but the placenta was retained within the right division of the uterus ; after several attempts on the part of a midwife to extract the placenta, which only resulted in the detachment of the cord, a physician was summoned, who likewise failed to empty the uterus ; the patient was then taken to the hospital in Jena, where for five days repeated attempts to remove the placenta were unsuccessful. As by this time the woman had a high temperature, associated with chills and a fetid discharge from the vagina, it was determined to perform laparotomy in order to remove the source of infection, with the hope of averting a general septicæmia which otherwise seemed inevitable. The abdomen was accordingly opened, the body of the uterus was amputated, and the cervical stump fastened in the abdominal wound ; the temperature fell immediately, and the woman made a good recovery.

As Schultze himself remarks, the field for this operation must be a very limited one, for the conditions that would justify its performance would be the existence of the source of infection in the uterus alone, the impossibility of removing it *per vias naturales*, and the certainty that no infecting thrombi or emboli were producing metastatic abscesses in other parts of the body—a combination of circumstances that would not often be found.

The reason assigned by Schultze for not removing the decomposing placenta by the natural passage in his case was the tightly constricted internal os, which prevented ready access to the cavity of the uterus on the right side ; but no mention is made of an attempt to overcome this constriction by instrumental means, as, for instance, by bougies of gradually increasing size, in order to endeavor to strip the placenta from its attachment with the aid of a curette—a procedure, one would think, that should have been at least attempted before subjecting the woman to the danger of an abdominal section, and leaving her ever afterward in a mutilated condition.

SURGICAL MYXŒDEMA.

Total ablation of the thyroid gland is liable to be followed by a remarkable constitutional affection called surgical, or operative, myxœdema, in contradistinction to the disease of the same nature which occurs spontaneously. The surgeons in certain of the Swiss cantons in which bronchocele is endemic have had a large experience with this remarkable condition, and some months ago we referred to the conclusions of Kocher as well as to the artificial production of the disease in monkeys by Horsley.

At the recent Surgical Congress at Paris, Reverdin, of Geneva, presented a paper on the identity of the operative and spontaneous myxœdema. The earliest and most important of the symptoms of operative myxœdema is swelling of the face, hands, and neck ; not the puffy œdema of dropsy, but a firmer, more solid exudation. The tactile sensation

is slow, the special senses are dulled, and there are often unpleasant subjective sensations, particularly that of cold. The skin becomes dry and scaly, and the hair often falls; speech becomes slow and there is loss of memory. With these there are no visceral symptoms, though occasionally the urine is albuminous. In children from whom the gland has been removed, a condition of cretinism may be induced and there may be such an arrest of the physical and mental development that the child becomes an idiot. Bourneville and Bricon have observed myxœdema in idiotic children, and have determined the absence of the thyroid gland in these cases.

It is well to know that this condition does not invariably follow removal of the gland. Thus, of Kocher's thirty cases twenty-four became myxœdematous; of Reverdin's eleven, only five; on the other hand, Billroth, in a large number of operations, has not had a case, and Bottini has been equally fortunate. It would certainly seem as if in Switzerland, where goitre is endemic in certain regions, there are other conditions which render the patients more liable to this unfortunate event. The extirpation need not be total; Reverdin has seen a mild grade of the disease follow removal of only one lobe. There are many different grades of the affection and the milder forms are capable of amelioration and occasionally of cure.

THE ENUCLEATION OF NODULES OF STRUMA.

Since the publication of Kocher's observations on "Cachexia Strumipriva," or operative myxœdema, following the total excision of the thyroid body for neoplasms, surgeons have reached the conclusion that the operation should only be practised for malignant growths; and they have resorted to various methods of operating in ordinary cases with the view of obviating the condition first described by Kocher, and amply verified by other surgeons.

Among these modifications the most recent is that of Socin, of Basle, described by his assistant, Garré, in the *Centralblatt für Chirurgie*, No. 45, 1886. It consists in the intraglandular enucleation of the degenerated portions of the thyroid body, which portions, in the great majority of cases, exist as circumscribed nodules separated from the functionally active tissue by more or less thick capsules. If the nodules are superficial the surrounding layer of sound glandular tissue is very thin; should they, on the other hand, be embedded deeply, the overlying tissue varies in thickness from one fifth to four-fifths of an inch.

In either event the translucent, bluish, slightly vascular capsule having been reached, it is opened, and the tubers enucleated with the finger, a periosteotome, or any other suitable instrument. The hemorrhage is venous and not abundant, although profuse bleeding may occur in cutting through thick layers of the gland to reach the nodules, unless hemostatic forceps be first applied. The walls of the cavities are closed by catgut ligatures, spaces being left for drainage tubes, and the external wound is united and dressed on ordinary antiseptic principles.

The procedure, thus briefly described, has been resorted to in about fifty cases, with the best results. It is easily practised; unattended with danger; large vessels, as well as the recurrent laryngeal and other nerves, are secure from injury; and it has never been followed by surgical myxœdema. For these reasons, the operation deserves an extended trial.

LOCAL APPLICATIONS IN VAGINITIS.

Slocum has recently, in The Medical News, called attention to a communication upon the use of vaginal tampons of absorbent cotton "coated with boracic acid" in the treatment of profuse and offensive leucorrhœa, a method which he prefers to the use of boroglyceride cotton tampons, because the glycerine causes a copious watery discharge which, though at times beneficial, is not always desirable. At the Jefferson Medical College Hospital boric acid has been used in the treatment of vaginitis with very satisfactory results. A large cylindrical tampon with a string attached to it, is covered with glycerine and then thoroughly coated with boric acid sprinkled from an ordinary pepper-box. It is allowed to remain in the vagina for forty-eight hours.

Delineau, in the *Revue Médico-Chirurgicale des Maladies des Femmes* for October, advises, in vaginitis, the use of a powder composed of salicylic acid three parts, powder of poplar charcoal five parts, and powdered talc ten parts, applied by an insufflator to the entire vaginal surface.

We find in the same number of the *Revue* the following method of preparing salicylated cotton, which may also be used not only for uterine, but also for vaginal application. One hundred parts each of concentrated alcohol and of purified cotton, ten of salicylic acid, and one of glycerine are provided. The salicylic acid is dissolved in the alcohol, the glycerine added, and then the cotton is saturated in the mixture, the superfluous fluid squeezed out, and the cotton dried and kept in hermetically sealed flasks.

Surgeon-General Moore arrived at Washington from San Francisco on Tuesday, and at once assumed the duties of the office of Surgeon-General of the Army, to which he has just been appointed.

Dr. N. A. Randolph has been elected Professor of Hygiene in the University of Pennsylvania, to succeed the late Dr. Joseph G. Richardson.

The arrangements for the Centennial Celebration of the foundation of the College of Physicians of Philadelphia are being rapidly perfected. The ceremonies on January 3d, will include an address, at Association Hall, by the President, Dr. S. Weir Mitchell, followed by a Reception, in the College building, by the President and Fellows. On Tuesday, January 4th, at noon, a Centennial Meeting of the College will be held with appropriate exercises, and in the evening the Fellows will dine together.

It is anticipated that representatives from the leading medical societies of the country will be present and participate in the celebration.

M. Colin, the eminent professor in the Veterinary School at Alfort, read a paper last week before the Paris Academy of Sciences, showing that the average annual number of deaths from rabies in France is 26, and that since M. Pasteur began his course of treatment the same number of patients has died. According to official statistics the number of persons bitten by mad animals last year in France was 351, while M. Pasteur has treated 1700 patients. M. Colin concludes that the Pasteur system is of doubtful efficacy, and he is alarmed for the results of virulent inoculation.

The Medical Missionary Record is the title of a new medical journal, of which the first seven numbers have appeared. It is edited and published by Dr. George D. Dowkontt, Medical Superintendent of the New York Medical Missionary Society, among the managers of which we notice are Drs. Sabine, Markoe, Roosa, Loomis, and Thomson.

The first number has a list of all the medical missionaries throughout the world, numbering nearly 230. The reading matter is varied, interesting, and valuable, whether from the medical or the missionary aspect.

The Pennsylvania Hospital for the Insane has opened a dispensary service for cases of incipient mental disorders, at the out-patient department of the hospital, Ninth and Spruce Streets, which is intended to furnish advice and treatment to this class of cases among the poor. It is the purpose that only cases unable to pay for their medical advice are to be treated at this service.

A new *Centralblatt*, devoted to the subject of bacteriology and animal parasites, will shortly appear in Germany, under the editorship of Dr. Oscar Uhlworm, in Cassel. The coöperation of Drs. Baumler, Bollinger, Buchner, Doutrelpont, van Ermingen, von Etlinger, Flügge, Grassi, Heiberg, Hueppe. Kitasato, Klebs, Koch, Miller, Neisser, Oerley, Prazmowski, Watson Cheyne, Weichselbaum, Weigert, and Zopf has been secured.

There is also to be issued in Germany a new quarterly, entitled *Progress in the Chemistry of Food Stuffs and Condiments*, which will be under the editorial management of Hilger, Keyser, König, and Sell.

The New York Skin and Cancer Hospital, and its country branch at Fordham, Westchester County, N. Y., are now ready for the admission of patients from New York and other States. Applications should be directed to L. D. Bulkley, M.D., 4 East Thirty-seventh Street, New York, Secretary of the Medical Board.

REVIEWS.

A Treatise on the Principles and Practice of Medicine. By Austin Flint, M.D., late Professor of the Principles and Practice of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, New York. Sixth edition, revised and largely rewritten by the author, assisted by William H. Welch, M.D., Professor of Pathology in Johns Hopkins University, Baltimore, and Austin Flint, Jr., M.D., Professor of Physiology in the Bellevue Hospital Medical College, New York. 8vo. pp. 1160. Philadelphia: Lea Brothers & Co., 1886.

It was known at the time of Dr. Flint's death that he had, with the coöperation of Prof. Welch, completed the revision and partly rewritten a sixth edition of his *Practice of Medicine*. Dr. Welch and Dr. Flint, Jr., have carried the work through the press. The latter has written an interesting preface which adds not a little to the value of the work, as showing the untiring industry of the author and the care with which he collected materials during an unusually long and active professional life. The work is based, we are told, upon an unbroken series of clinical records begun in 1833, and continued for more than half a century and which embraces sixteen thousand nine hundred and twenty-two folio pages of manuscript written with the author's own hand! Dr. Flint was unquestionably one of the most careful clinical students which this country has produced, and he enjoyed exceptional facilities for the study of the diseases incident to all parts of the United States, as during the half century of professional duties he occupied chairs in Buffalo, Louisville, New Orleans, and New York. One characteristic of Dr. Flint's mind has contributed to make this work of special value. He never strained after that false consistency which makes so many teachers, as age creeps over them, cling all the closer to the views which they may have formed as young men. His mind was unusually receptive and he kept thoroughly abreast with the current medical opinions of the world.

Among the changes in this edition we notice many new articles of great value, such as the following: "Infectious Tumors," "Cerebral Syphilis," "Syphilitic Disease of the Lungs," "Spastic Cerebral Paralysis of Children," "Hereditary Ataxia," "Myxœdema," "Multiple Neuritis," "General Pathology of Fever," and "Milk Sickness." The pathological portions of the entire work have been revised and rewritten by Professor Welch with the greatest care.

No more fitting monument to the author could be desired than this great work, which has contributed more than any other text-book to inculcate in English-speaking physicians sound principles in the practice of medicine.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 2, 1886.

The President, A. Jacobi, M.D., in the Chair.

Dr. J. Blake White presented a

PHTHISICAL LUNG INJECTED WITH CARBOLIZED IODINE.

He said that the results which he had met with during the past year from injections into diseased lungs had greatly excited his enthusiasm. Intra-pulmonary medication theoretically seemed to be a very rational method of treatment, and practically it was found to be of much efficacy. Having referred to the success met with by Drs. Pepper, Robinson, and others, he mentioned a case of his own in which recovery took place, and the course of which was watched by three professional friends. The preparation which he prepared for injections was a mixture of carbolic acid and tincture of iodine, to which was added a small amount of morphia and atropia. In the cases in which he had employed it all the symptoms had been relieved; the cough being controlled, expectoration diminished, the sleep improved, and night-sweats checked.

The specimen presented was the left lung of a patient in whose case three injections were made with the effect of producing marked relief. The case was hopeless, however, as regards cure, at the time the first injection was made, and the patient died six weeks after the administration of the third. Dr. White gave the history of the case in detail.

The patient was a native of Ireland, a male, and forty-six years of age. He was a milkman by occupation. When first seen by Dr. White in his service at Charity Hospital, last summer, he was in the third stage of phthisis, with a large cavity in the upper part of the left lung, which was in a state of active suppuration. There were profuse expectoration, exhausting night-sweats, and all the ordinary symptoms of advanced pulmonary tuberculosis. On the 19th of July, 1886, the first injection of ten minims of carbolized iodine was made in the first intercostal space. It was followed by no reaction, and there was immediate and marked improvement in the patient's condition. The next week a second injection of the same character and quantity was given, and this also, without any reaction whatever; marked improvement in all the symptoms followed. The man felt so much better, indeed, that he was enabled to make an amount of physical exertion that before the treatment would have been imposisble.

On the 30th of August a third injection was made, this time twenty-five minims of the carbolized iodine being employed. It was attended by a brief paroxysm of coughing, but no bad results followed, and marked improvement was subsequently noted. Dr. White's term of service at the hospital now expired, and no more injections were made.

The patient died October 19th, and at the autopsy the left lung was found bound down everywhere by the most extensive pleuritic adhesions. The pericardium was also involved by adhesions to such an extent that it was a wonder to those present how the heart had been enabled to perform its functions for so long a time as it had. Much of the tissue of the left lung presented a cirrhotic appearance, and in the vicinity o the cavity in the apex, a considerable space was found to be tinged by the injections. The upper portions, where the injections had been made, presented a marked contrast to the lower portions, where the tissues were in a state of advanced disintegration. During life also the auscultating signs had indicated a dry condition of the upper parts very different from that met with in the lower. Very little pus was found in the cavity.

Dr. William P. Northrup read a paper on

LARYNGEAL DIPHTHERIA; INTUBATION, AND PATHOLOGICAL ANATOMY.

He alluded to the conflict in Paris, in 1858, between Bouchut and Trousseau, regarding intubation of the larynx, which ended in the official declaration by the Académie de Médecine that this procedure was impracticable. Nothing more was heard of intubation for nearly thirty years, when the practice was revived by Dr. Joseph O'Dwyer; in whose hands it had been attended with such marked success that the method had now attracted an amount of attention which had not been met or equalled in the profession since the advantages of Esmarch's tourniquet were made known.

He then proceeded to give a *résumé* of the statistics of all the cases of death from laryngeal diphtheria occurring during the last five years among the children under the care of the New York Foundling Asylum, who number almost 1800 per year; 1100 of these being intrusted to paid nurses, who look after the children in their own homes, and the rest being kept in the asylum buildings. During this period there were 87 deaths from the cause named; of which 50 were in females and 37 in males. The greatest mortality was noted in children between the ages of 3 and 4 years. In 56 of the 87 cases the membranes formed in the larynx either before or simultaneously with their appearance in the pharynx. In two cases, croup was the first symptom noticed, and death occurred within 20 hours. In 54 cases there was pneumonia, and broncho-pneumonia was very frequently met with. 27 children died from extension of the membranes into the bronchi, and in 29 the pneumonia alone was sufficiently severe to cause death. The highest temperature met with was, in 19, 104°; in 15, 105°; in 3, 106°; in 2, 103°; and in 1, 107°.

Having given the statistics of the extent of the membranous exudation, he said that in all but three of the 87 cases the membranes were very extensive. Interstitial emphysema occurred in 8 cases. There were 51 cases of primary diphtheria, and 31 in which the disease was nearly or remotely related to scarlet fever or measles.

Dr. Northrup exhibited a set of O'Dwyer's instruments for intubation, and explained the method of introducing and extracting the tube for the larynx. It is important, he said, that the child, wrapped in a blanket, should be held upright in the arms of the nurse, who, by grasping the elbows, secures a firm position without interfering with the movements of respiration. The gag is inserted in the left angle of the mouth, well back

between the teeth, and opened widely; and an assistant holds the head, thrown somewhat backward, while the operator inserts the index finger of the left hand to hook up the epiglottis, and direct the tube into the larynx. It is better to make several short attempts to introduce the tube than one prolonged effort, on account of the interference with respiration thus caused. The extraction of the tube is more difficult than its introduction, and Dr. Northrup, at the suggestion of Dr. O'Dwyer, recommended that physicians should practise both introduction and extraction on the cadaver. The procedure, however, is easier in the living child.

Those beginning to practise intubation, he said, are apt to use too small a tube, with the result that it is coughed up. This mistake, however, can easily be avoided by taking proper care to use the right sized tube for the age of the child, as indicated by the scale furnished with each set of instruments. There is, however, no danger of the tube slipping down into the trachea, as some seem to fear. In the first place, no case of such an accident is on record; and, secondly, it will be found that the head of the tube is always caught by the cricoid cartilage, which is situated at the narrowest point of the passage. Moreover, there is no danger of ulceration of the vocal cords being caused by the tube.

If the condition of the child appear favorable for forty-eight hours after the insertion of the tube, the prognosis is good; but it is entirely unsafe to give a favorable prognosis at any period before the expiration of the forty-eight hours. Not infrequently the greatest possible relief is afforded temporarily by intubation in cases which afterward terminate fatally by the extension of the membranes, or the occurrence of pneumonia. Dr. Northrup also spoke a word of caution in regard to withdrawing the tube too soon. Whether it is advisable to reintroduce the latter in any case will be shown by the examination of the chest. If, on auscultation, the vesicular murmur is normal, there is no cause for uneasiness; but if it is found that the air can not get into the lungs well, especially in the posterior portions, it is time to reintroduce the tube. The condition of the pulse also serves as a valuable guide. If the child is not very young, the tube can usually be removed in five or six days.

After mentioning to the kinds of food most useful and easily taken after intubation, he referred to the cases reported by Dr. Jennings, of Detroit, four in number, all of which terminated fatally. Dr. Jennings recommends tracheotomy in preference; stating that he has had ninety-five per cent. of cases of recovery in this operation. Dr. Northrup called attention to the fact, however, that his cases of intubation were of a very unfavorable character. Still, Dr. Jennings recommended intubation in children under fifteen months old, and in hopeless cases; believing that it was a supplement to, though not a substitute for tracheotomy.

Having mentioned that O'Dwyer's tubes are of great service in stenosis of the larynx in adults, and particularly when the condition is due to syphilis, Dr. Northrup gave his conclusions in regard to intubation as follows:

It relieves dyspnœa due to laryngeal stenosis. There are few objections to the method, and it is comparatively simple and free from danger. No anæsthetic is required. No trained assistant is required. There is no fresh wound to serve as a point for new impaction. If it proves inefficacious, tracheotomy can still be performed. It has one conspicuous fault, viz., that it embarrasses and sometimes interferes with deglutition.

There is also some danger connected with it. The tube may possibly push some of the tenacious membrane down before it, and thus cause a blocking up of the trachea below.

He then asked, Does it meet the requirements? and argued that the statistics show that it does. Waxham has had 96 cases, and O'Dwyer 48. In all, 165 cases have been reported. Dr. Northrup stated that 28½ per cent. of these had recovered.

It is to be remembered, too, that the operation is still new. Valuable experience has been gained, and it can scarcely be doubted that in the future the results will be even more favorable. The statistics of tracheotomy show no such satisfactory result as this, and he believed that if all the fatal cases of the operation were reported, the percentage of mortality would be considerably larger than it now appears.

Dr. Francis Huber said that he had performed intubation eleven times. The special symptoms for which he had resorted to it are aphonia, stridulous expiration and extreme recession of the chest-walls above and below the sternum. The first two cases were in very young children with extensive diphtheritic deposit, and both proved fatal. The third was in a child two years and three months old, and was followed by recovery. The fourth was in a child six years old, in whom croup occurred as a complication of measles. The fifth was a case of diphtheria, in which death resulted from double pneumonia. The sixth was in a girl three years old, suffering from croup and measles. The membranes became gangrenous, and the child died in uræmic convulsions. The seventh was in a child twenty-seven months old, suffering from diphtheria. The eighth was in a child with diphtheria, who had an old endocarditis. The tube was removed at the end of six days, but two days later he was called in and found that the stenosis had returned. The child had been carelessly exposed, and a new laryngitis had been set up. The tube was again introduced, and allowed to remain three days; after which the patient recovered. The ninth was a case of croup with measles, in which death occurred from pulmonary œdema. In the tenth case, in which intubation was practised the previous day, the child is still alive, but it is probable that death will soon occur from pneumonia. In the eleventh case, which was also intubated the same day, the child was moribund at the time, and died soon afterward.

Out of the eleven cases there were four recoveries, while one child was still wearing the tube. Ten had died, and one other would probably do so. These results are much better than he had obtained with tracheotomy. He had performed this twelve times, but had saved only two out of the twelve children. He stated, also, that in all his cases of intubation, the method was resorted to very late. In conclusion, he exhibited a modification of the O'Dwyer gag, devised by his friend, Dr. Emhard, who had also had several cases of intubation. Five of these were successful, and all of the eleven, like his own, were late cases.

Dr. Alexander S. Hunter said that he had prac-

tised intubation twice, both times in cases in which he was called in consultation. The first case was that of a child, six years of age, who had been suffering from membranous croup for two days. The stenosis was extreme, and pulmonary œdema was coming on. He introduced the tube with little difficulty, and the relief was immediate and most marked. After forty-eight hours, however, he saw the patient again, and found the respiration very rapid. He had great difficulty in swallowing, and he found that by giving it a large quantity of nourishment at a time it got along better than if the attempt was made to give it by the teaspoonful. The pulmonary trouble was now so great that it was evident that the child could live but a few hours longer. He therefore removed the tube, and it still breathed quite well; but died some hours afterward.

The second case was in a child, two and a half years old, with diphtheria, who had a temperature of 103½°. There was marked stenosis, and it was almost completely asphyxiated. The relief afforded by intubation was prompt, as in the other case. The next day the child coughed up the tube, and it was reintroduced by the attending physician; but death ensued in five or six hours. Dr. Hunter stated that he had practised intubation five or six times on the cadaver before he attempted it on the living subject.

Dr. E. L. Partridge said that Dr. Northrup had mentioned that the only danger from intubation was the possible detachment of portions of membrane which might act as a diaphragm in the trachea below the tube. The same objection held true, however, in regard to tracheotomy, and he referred to a case in which fatal obstruction occurred in this way.

Dr. A. G. Caille said that he had had one case, but intubation was resorted at so late a period that he thought it should not go on record. He believed that the introduction of the tube would be more easily effected if the special points about the anatomy of the parts are carefully borne in mind.

CINCINNATI ACADEMY OF MEDICINE.

Stated Meeting, November 22, 1886.

The President, James T. Whittaker, M.D., in the Chair.

Dr. T. A. Reamy read a paper on

ergot in labor and puerperal convalescence, with protests against the extent to which it is employed.

He said that the field of utility for ergot has faded from the rather extensive indications given by Stearns in 1807 to the canonical law of banishment by Barnes in 1885. Its dangers have been proclaimed ever since its introduction, and the long list of injury and death in the catalogue of recorded accidents is a solemn warning against its indiscriminate employment.

The character and extent of the evils of ergot are so well known that they need only be mentioned. Lacerations of the perineum, vagina, and cervix, retention of the placenta, the death of the child, acute toxic ergotism and gangrene, the rupture of the uterus and the death of the mother, all offer abundant evidence of the frightful energy of ergot and its consequent perils. Yet, notwithstanding this startling category of possible dangers, and these numerous lines and precepts of caution, ergot is to this day the most generally abused agent in obstetric practice.

We are perfectly well aware of the almost universal practice among midwives of administering this drug at any stage of labor when the progress is at all tardy, and when it is considered that in this city seventy per cent. of labors are attended by midwives, we must tremble at the perils to parturient women. Nor is this evil practice confined to midwives. It is within his personal knowledge that there are very many physicians, both in city and country practice, who employ this agent very extensively before the end of the second stage of labor.

He expressed his firm conviction that the cases are extremely rare where the exhibition of ergot prior to the termination of the second stage of labor is justifiable, and in these rare cases of ante-partum uterine inertia, which have resisted other means of securing contraction, the ergot should be given in small doses with caution. It will not be claimed that these restrictions are more radical than the rules given by almost every modern obstetric writer of reputation, as already cited in this paper. Nevertheless, it must be confessed that this teaching is too often disregarded. The practitioner does not discriminate. He knows that ergot certainly and powerfully increases uterine contractions, that contractions consummate delivery. He therefore gives ergot to shorten the duration of labor, and the evils follow.

The objections to the administration of ergot before the close of the third stage of labor are equally positive, though the dangers of rupture of the uterus, death of the child, laceration of the cervix or perineum are not now in the count. Closure of the uterus with incarceration of the placenta is no uncommon result from the practice, since it is a well-observed clinical fact, though difficult to explain, that the action of ergot tends expecially to close the os internum, the ring of contraction of Schröder, rather than to produce expulsive contraction of the upper portion of the uterus. Should the placenta not be retained, clots are retained in the uterine cavity rather than expelled, by virtue of the same faulty character of contraction. But a still greater evil is hidden in this question, so that it is not generally seen, namely: The rigid contraction secured by the ergot does not result in thickening of the uterine walls in the upper segment, the region of placental attachment, with corresponding thinning of the walls in the lower segment of the uterus. In other words, it does not promote and secure retraction, a condition essential, first, to permanent protection against hemorrhage; second, to the first steps in involution. This condition of perfect retraction is only secured by the intermittent contractions and relaxations which normally occur in execution of the physiological law governing the uterus at such a time. If from any cause these contractions are too feeble, they may be strengthened by friction upon the abdomen, gentle compression of the uterus through the abdominal wall, or, if need be, by suitable doses of ergot. But it is here that he wished to enter his emphatic protest against the practice so extensively adopted of administering a drachm of the fluid extract of ergot immediately upon delivery of the placenta. Not only does he protest against this single dose, but against the custom of continuing the exhibition of full doses three times a day for

several days, though he advises the use of small doses sufficient to maintain healthy uterine contraction in all cases where the natural muscular tonicity is inadequate.

It is proper that further reasons be given for these protests. Important objects of treatment during the puerperal period, must be to secure perfect involution, and provide against subinvolution, a disease whose prevalence and disasters are common knowledge, but whose causes are not always clear.

It is admitted, however, that proper uterine retraction is essential to involution. A clear conception of the processes by which retraction is reached, is of importance in this inquiry. By retraction is meant not only the gradual drawing up of the contraction ring of Schröder, by the shortening of the longitudinal fibres of the body and fundus in process of contraction, but also the general rearrangement of the muscular fibres of the whole organ, both during and subsequent to delivery. This rearrangement so disposes the fibres that those previously placed end to end now become situated side by side. Thus a general thickening of the uterine walls ensues, and consequently the vessels are both compressed and rendered more tortuous.

After-pains are nature's expression of the rhythmical attempts of the muscular fibres to rearrange themselves, and normal retraction is secured by rhythmical contractions which persist after labor. These contractions are not always painful, for they are frequently carried on, as is evinced by the alternate hardening and relaxation of the uterus, without the patient's knowledge—that is, without after-pains.

Involution is both a constructive and destructive process, and it really begins with the degenerative changes which are set up in the muscular fibres with the first pains of labor. These contractions gradually lead to the destruction of the muscular cells, in common with the rules of function in muscular cells everywhere. Rhythm of contraction is essential both to their function and to such gradual destruction as will insure their subsequent absorption as fatty detritus. Persistent tonic contraction defeats the proper performance of their function in the exhaustion or paralysis which follows. Exhaustion follows because they are no longer able to secure sufficient nutrition, during relaxation, to induce them to perform another contraction, a condition readily fostering hemorrhage.

Every careful obstetric clinician has observed cases in which, after delivery of the placenta (the speaker did not now refer to cases in which ergot had been given), the uterus presents by palpation through the abdominal wall, the condition of stony hardness which is in strong contrast with the condition of firmness, marking the state of retraction. This hardness of the uterus is due to powerful tonic contraction, and if it be observed to persist for several minutes, the experienced physician recognizes in it unerring evidence that within a short time muscular paralysis will occur, the uterus becoming flabby and hemorrhage ensuing. This paralysis is due to muscular exhaustion, consequent upon the persistent violence of the contraction.

It is claimed by Cazeaux that uterine contraction, secured by a full dose of ergot, is maintained for about one hour and a half. Dr. Reamy's observations show that the period is longer. However, one hour and a half of persistent contraction is sufficient to produce muscular paralysis. The stony hardness of the uterus under such contraction by ergot, is identical with that above spoken of. The wise practitioner will not leave the bedside of his patient until the above-named hardness of the uterus is replaced by the firm but softer state of retraction, which, as already indicated, can only be reached after alternate contractions and retraction have intervened.

The foregoing remarks touching the question of hemorrhage may furnish a clinical lesson worthy of consideration, but the object in presenting these facts is for the illustration of principles germane to the discussion of the relations of ergot to subinvolution of the uterus by its interference with rhythmical contraction. It is the disturbance of rhythm, however, in the degenerative processes which prepare the hypertrophied uterine elements for absorption, which is of most importance in this study.

Dr. M. Putnam Jacobi has called attention to the relations existing between the arterial and venous circulation in the gravid and puerperal uterus. "There is," she says, "a tendency to venous excess in the uterine tissues from the moment of conception to the end of pregnancy;" and we all know that venous hyperæmia is the condition most favorable to growth, and the uterine changes during the entire time are those of simple growth alone.

"When the first pains of labor begin, the venous excess is cut off by the clogging of the sinuses at the placental site with giant cells," and a relatively greater amount of arterial blood fills the uterus. This arterial blood, bearing the oxygen of nutrition, stimulates the large muscle cells into contraction—that is, into the first performance of the function for which the gestative growth has prepared them. These contractions compress the veins and thus further diminish the venous supply. This process ultimately expels the ovum and checks venous hemorrhage from the placental site by venous thrombosis.

After the ovum is expelled, an excess of arterial blood is still required intermittingly, not only to produce the retraction induced by the after-pains, but also to furnish the oxygen necessary to the gradual reduction of the now unnecessary elements into fatty detritus preparatory to absorption. The facility of absorption by veins and lymphatics depends upon the relative difference between the venous and arterial tension.

In order to secure rapid and successful involution, a certain relation must exist between the venous and arterial pressure. An excess of venous blood will check involution and conduce to subinvolution, both by checking fatty degeneration and disabling absorption. On the other hand, excessive rise of arterial pressure, and tonic contraction of the uterus, also interfere with the necessary degenerative changes, by delaying the constructive changes in the endometrium, which, since they are processes of growth, are best performed under low pressure—venous hyperæmia.

At the placental site, as well as in a less degree throughout the endometrium, after the separation of the placenta and decidua, an important process of repair must be speedily instituted. This is important as prophylaxis against sepsis and subinvolution. It is at this part of the organ that degeneration and growth must go hand in hand. By the degeneration of the lacerated

membrane and its voidance through the lochial discharge, and by the stimulation of the venous blood to growth, a new endometrium is formed. When the uterus is injected, the veins blue and the arteries red; soon after parturition it is seen that while there is excess of arterial vessels, this excess is less manifest the nearer the endometrium is approached, showing that there is relatively more venous blood in this situation than further out in the muscular walls.

Further corroboration of this condition is found in the fact that the endometrium is entirely reformed much earlier than the complete reduction of the remainder of the organ. In the deeper parts of the uterine walls both degeneration and growth must occur. The new uterus is chiefly formed from the development of the muscular nuclei, while the enormous fibres of the gravid state are reduced to fat and absorbed in the course of involution, this process being slower than that in the endometrium, as a result of the greater relative excess of the arterial blood. Thus the result of a nice balance, a proper relation between arterial and venous pressure in the process of uterine involution is apparent. It is, therefore, manifest that the disturbance of this essential relation by the stony tetanic contraction maintained by full doses of ergot will defeat proper and speedy involution, will prolong the puerperal period, and will indirectly foster subinvolution.

Again, the tonic contraction of the uterus for an hour and a half after the expulsion of the placenta, is an objection to the employment of a full dose of ergot at this time, in that it confined to the general circulation a considerable quantity of blood which is normally lost in the intervals of relaxation which should occur. A certain amount of hemorrhage at parturition is conservative. Instead of blood being required for the sustenance of two lives, there is now only one, and that one requires less than before, because it is no longer required to sustain the laborious functions of the hypertrophied uterus and vagina.

Moderate hemorrhage is likewise conservative in permitting the loss of blood from the uterus, surcharged with the effete products of its recent extreme activity.

He said that it must not be forgotten that he was speaking of the effect of full doses of the drug. H. C. Wood, and many others, are authority for the statement that small doses—a few minims of the fluid extract, or a single grain of the solid extract—will only increase the force of the uterine contractions, and not affect the periods of relaxation—in other words, will not disturb rhythm in action. His own experience confirms this view. With small doses, where proper indications exist, he makes no issue.

The following should be the rules governing the administration of the drug:

1. Ergot may properly be administered in small doses, say ten to twenty drops of Squibb's fluid extract, before delivery, in cases of uterine inertia which resist other means; and especially in women who are predisposed to hemorrhage.

2. It should be administered in full doses hypodermatically, or per os, or both, in cases of post-partum hemorrhage.

3. When an anæsthetic has been freely used during the second stage of labor, it to some degree predisposes to post-partum hemorrhage. Ergot is, therefore, indicated.

4. It should be administered in small doses, two or three times daily, during the period of puerperal convalescence, whenever a flabby uterus indicates it. In such cases there is no better combination than the pill recommended by Mundé: one grain ext. ergot, one grain of quinine, and one-fourth of a grain ext. nux vomica.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, November 8, 1886.

DR. C. MCBURNEY IN THE CHAIR.

DR. GEORGE A. PETERS reported two cases of

RADICAL CURE OF HERNIA.

Case I.—Michael McG., Irish, aged forty-one, admitted into St. Luke's Hospital May 4, 1885, with double inguinal hernia—that upon the left side being much the larger of the two. Twelve years ago, while lifting a child at arm's length, he "felt something give way;" there was but little pain although a "small lump" was observed in the left groin. A physician whom he consulted pronounced it to be a hernia, and directed him to wear a truss, which he did for about two years, after which time, as he experienced no pain or inconvenience and the tumor was very small, he discontinued its use. Three years ago, while lifting a heavy weight, the tumor immediately became much larger and was attended with sharp pain in the lumbar region, for which he remained in bed for a week or two. Since this time he has never been able to hold up the hernial swelling with any truss which he could procure.

Eight years ago he came violently in contact with a "sharp corner," and a small bubonocele appeared in the right groin. This gave him no trouble until he lifted the heavy weight three years ago, after which time both his herniæ became large and painful. For the year or two past he has grown very fleshy. Summing up, this is his condition on admission to the hospital, viz:

On the left side is a large, indirect inguinal hernia, easily reduced excepting a small knuckle of intestine apparently adherent to the sac. The pillars of the ring are readily defined and very much spread, easily admitting four fingers. On coughing or straining a large mass of intestine comes down measuring three by six inches. The inguinal ring upon the right side easily admits two fingers and the edges are sharply defined. On coughing only a small bubonocele comes down.

Family history and general condition good, except that he had been drinking freely of spirits for some time. As he suffered so much from the size of the tumor and the fact that he could not wear a truss, Dr. Peters determined, after consultation with his colleagues, to perform Banks's operation for the radical cure of the hernia in the left groin.

May 7th. Patient was put upon the table for operation, and with much delay brought under the influence of ether. During almost the entire time of the inhalation he vomited, coughed, and struggled so that it made the performance of the operation one of great difficulty. A free incision was made through the skin commencing just above the level of the external abdominal ring and the dissection carried carefully down, layer by layer,

until the sac was exposed and the pillars of the ring brought distinctly into view. The ring was very large and patulous (easily admitting four fingers). The hernia was now reduced by gentle taxis, leaving the collapsed sac in the wound. The cord was found behind and well out of the way. The sac was now opened and a knuckle of gut was found closely adherent to its wall just at a level with the ring. It was not deemed prudent to attempt its separation and it was left as found. The opening of the sac was now carefully and with much difficulty stitched to the pillars through and through with stout catgut and the ring closed.

Owing to the restlessness of the patient under ether and frequent attacks of vomiting, the bowels were forced down in a large mass and spread out upon the outside of the belly. The protruding bowel was carefully guarded with towels and sponges wet with hot water. This stage of the operation was exceedingly difficult and prolonged. It was, however, finally accomplished. A great portion of the sac was now dissected out, two bone drainage tubes introduced and the wound closed with carbolized catgut and an antiseptic dressing over all. During the escape of the bowel the pulse sank very low and he suffered much from shock, but was finally restored by brandy, ether, and digitalis hypodermatically administered. Patient suffered very much from nausea, pain, and tympanites for a few days after the operation, but these symptoms gradually subsided. The wound did not heal throughout its whole extent by first intention, but remained open at the two angles, gradually filling up with granulations until June 17, 1885, when he was discharged cured.

Case II.—Alice S., Irish, aged fifty, married, was admitted into St. Luke's Hospital January 22, 1886. Six years ago, after lifting a heavy weight, she noticed a "small lump" in the right groin; finding that it did not disappear after a few days, she entered Roosevelt Hospital, where she was treated for a short time, but no operation was performed. Ever since that time she has "felt a weakness" in the right groin, and, on exertion, a reducible tumor would appear. Has never worn a truss. Ten days ago, after a severe strain, the tumor appeared; was painful, and increased in size; the bowels were constipated, and she suffered somewhat from nausea. On admission, examination revealed a tumor in the right groin, below the inner third of Poupart's ligament, globular in shape, about one inch in diameter, elastic to the touch, slightly painful on pressure, and dull on percussion. A portion resembling a pedicle extends down toward the femoral canal. Before admission, attempts had been made to reduce it by taxis, but without success. The attempt was renewed after admission, with no result except to occasion local inflammation and considerable pain. She was ordered strict decubitus, and the cold coil was applied.

The tumor was considered to be an incarcerated femoral hernia, contents chiefly omentum, and, after consultation, Dr. Peters determined to perform Banks's operation, hoping to make a radical cure.

February 5th, she was put upon the table, ether was administered, and she was quickly brought under its influence. The integument of the groin and neighborhood was shaved, scrubbed, and rendered aseptic. An incision about two inches long was made over the convexity of the tumor, and the dissection was carefully made down toward the sac. The connective tissues in this neighborhood were matted together, thickened, and extensively adherent to the sac itself. These adhesions were carefully dissected away, and the sac opened, allowing the escape of some yellowish fluid. When brought into view, the contents of the hernial sac were found to be a sheet of omentum enveloping about three inches of the vermiform appendix, the distal portion of which was doubled upon itself, allowing the knuckle thus formed to project above the omentum, resembling a gland, for which it was indeed mistaken until the unravelling of the tissues determined its true character. The contents were adherent to this sac, but were dissected free, and the vermiform appendix and omentum were separated down to the ring, where each was separately ligated with stout catgut, and cut off. The portion of the appendix vermiformis removed was two and a half inches long, and about the size of a goose-quill. The sac was now tied off, and with the stump which was left just at the femoral ring was stitched through and through with catgut. A rubber drainage tube was now inserted to the bottom of the wound, and the skin closed over with fine catgut suture. During the operation the wound was frequently irrigated with solut. hydrarg. bichlor., 1 to 1000. The dressing was iodoform gauze and spica bandage. The first dressing was not disturbed until February 10th, when the drainage tube was removed, there being perfect union except where the tube emerged. During the progress of the cure a small collection of pus occurred, which somewhat delayed the healing. Discharged cured March 9, 1886.

On presenting these two cases of operation for the radical cure of hernia, he desired to call attention to complications occurring in both of them. In the case of McGowan, who took ether badly, on opening the sac a large mass of intestines was forced by his efforts to vomit, through the distended and flabby ring, and was the source of much embarrassment and considerable danger until they were returned. The principal assistant should guard very carefully the open ring, and check the first attempt at escape. The danger from shock will be much lessened if the truant gut be kept carefully protected by hot, wet sponges.

In the case of femoral hernia, a complication presented, namely, the appendix vermiformis, which he did not remember to have seen in any hernial sac which he had opened. In this case it was, when first seen, supposed to be a gland, but as the mass was unrolled its identity was established. As the hernial mass was adherent to the neck of the sac, it was determined to ligate the entire protrusion, so that it might act as a plug. On examining the appendix after its removal, it was found to be pervious down to the very tip, but contained no fecal matter. The wound of operation healed kindly, and the presence of the divided appendix seemed in no way to retard the cure.

Of all the methods which have been adopted for the radical cure of hernia, the one described above, and introduced to the notice of the profession by Banks, of Liverpool, is the most rational to the student, and captivating to the surgeon. The experience which most of us have had with the operations of Heaton by injection, and with the needle and wire, has not, he ventured to say, been so satisfactory as to convince us that nothing better can be devised.

The methods of procedure adopted vary according to the theories or experience of different surgeons. Some use the silver wire, others aseptic silken thread, and others carbolized catgut. The result of my experience and observation inclines me to advocate the catgut properly prepared, so that it will not dissolve too readily. Union by first intention in the wound is not so desirable as might at first seem. A sufficient amount of inflammation to produce a dense thickened mass of tissue, provided this be the result of suppuration and granulation about the ring and canal, is to be preferred. That the operation is a reasonably safe one is, he thinks, proven by the results already obtained. When the cases are properly selected, and the operation done with all modern precautions, the percentage of recoveries is large, as in the cases reported by Banks and others abroad. Even when such precautions are not observed, the statistics show a death-rate of only one in eight.

In cases where the hernia is large, and subjects its owner to much pain and discomfort, where it cannot be entirely returned, or, if returned, cannot be kept in place with a truss, this operation is indicated. Even if it should not result in a perfect cure, the patient will be so much improved as to be able to wear a truss with comfort, and become again a bread-winner.

Dr. Gerster remarked that, in regard to the name given to the operation by Dr. Peters, a very similar operation was first performed by Prof. Czerny, of Heidelberg, and he thought the precedence belonged to him. As regards the use of ether in herniotomy causing vomiting, he would mention the case of a very fat man who was admitted to the German Hospital, suffering from a massive scrotal hernia. The inguinal opening was large enough to put in the fist. The patient bore ether very badly—that is, coughed and choked so incessantly as to render operating impossible—and he changed to chloroform, and immediately the respiration became quiet, cyanosis disappeared, and the operation could be completed without interruption. Ether was borne very badly, although a hypodermatic injection of morphine had been administered previous to anæsthesia.

Dr. Lange asked if any one had any experience in McEwen's (Edinburgh) operation for hernia, in which the sac is pushed back into the properitoneal space, and the pillars of the ring closed in such a manner as to make a valvular closure? Dr. Lange had performed the same operation three times, but could give no definite statement as to its value.

Dr. Weir remarked that he had performed the operation a few days previously.

Dr. Stimson asked what sutures were used.

Dr. Lange replied he had used silk once, silkworm gut once, and catgut once.

Dr. Peters asked if the gut did not give way.

Dr. Lange replied that the cases were only very recent, although the wound was healed; that this was the third week after the operation, and there had been no trouble, but even at the time he used the catgut against his better judgment, as he had nothing else on hand.

Dr. Weir remarked that he used catgut, as he thought it was best, as the wound would heal without any trouble. With the use of the silver wire a sinus was frequently kept up until the suture was discharged or removed. In his hands the wound only exceptionally closed over the wire. Silk had a similar objection to it.

Dr. Lange said he had not used silver wire; he thought the silkworm gut was best.

Dr. Weir stated he had tested the use of catgut, and found it would last nearly two weeks.

Dr. Abbe said that he had used silver wire in three cases, and it had caused ulceration, although he had used great care. In one case, although suppuration occurred, it granulated over the wire. He had operated for hernia over forty times. The use of silver wire, advocated by Banks, is his only modification of the German method.

Dr. Wyeth asked Dr. Abbe how many of his cases had been really cured? how many had been able to go without a truss?

Dr. Abbe thought about one-third or one-fourth have a recurrence of the hernia at about the end of two years, the majority going from one to two years. He thought, with a light truss, they would be able to attend to their duties for many years. He thought a very important point was that the femoral hernias are almost invariably cured, while the inguinal are more difficult to cure. He thought it was those cases (the femoral) which often can go without a truss after the operation.

Dr. Weir remarked, as to this point of recurrence, he thought the method of leaving the wound open, filling it with iodoform gauze, and allowing it to heal from the bottom, would give better results. It had given satisfactory results in his cases for the past two years, and he was led the more to place reliance on this procedure. Since then it had also recently been advocated by Nussbaum, who treated the wound openly after a free employment of the actual cautery.

Dr. Wyeth said that, out of the number of cases in which he had operated for the radical cure of hernia—some strangulated and some not—in all about twenty cases—he really could not state positively that more than two had been cured.

NEWS ITEMS.

VIENNA.

(*From our Special Correspondent.*)

Ligature of both Superior Thyroid Arteries for Difficult Respiration in Goitre.—At a recent meeting of the Imperial Royal Society of Physicians of Vienna, Prof. Weinlechner exhibited a woman with goitre, in whom he had ligatured both superior thyroid arteries on account of great difficulty of respiration, and the operation afforded marked relief.

The patient, aged thirty-three, was affected with goitre since her childhood, at last the tumor increased in size. On the eighth of October she came into Prof. Weinlechner's clinic, exhibiting a livid color with great difficulty of respiration, which increased on the slightest movement. On the right side, the goitre was the size of a fist; on the left, it was somewhat smaller. On the upper part of each half of the tumor the superior thyroid artery appeared much distended; her voice has been since childhood somewhat hoarse, but there was no affection of the larynx. As there was much difficulty of respiration, Prof. Weinlechner was anxious to perform a total or a partial extirpation of the tumor, and

for this reason ligatured, after the method of Wölfler, both superior thyroid arteries. As both arteries could be well felt on both sides, the operation was not difficult. Prof. Weinlechner remarked that the patient felt better immediately after the operation, the trouble of respiration diminished, and the goitre has since shown a decrease of seven centimetres in size. He said he would, perhaps, later, ligature also the right inferior artery. What was remarkable in this case was the fact that, soon after the operation, the patient had a series of spasmodic attacks, which disappeared after the lapse of some days. There was, however, no question of tetany, as during the attack there were also present clonic cramps, and the face showed great congestion.

PARIS.

(From our Special Correspondent.)

Transmission of Symptoms of Hysteria under the Influence of a Magnet.—M. Babinsky, in a paper read at the Paris Biological Society, stated that, under the influence of a magnet, certain hysterical symptoms may be transferred from one person to another, even should these persons be placed at some distance from each other. In a first series of experiments, practised upon two hystero-epileptic patients capable of being hypnotized, the hemianæsthesia from which they suffered was transmitted from one to the other, as well as other symptoms produced in one of the patients by suggestion; different forms of paralysis, brachial or crural monoplegia, hemiplegia, paraplegia, coxalgia, dumbness, etc. In a second series of experiments, one of the above mentioned patients was placed in communication with patients suffering from different forms of hysterical spontaneous paralysis. These symptoms were transmitted to the hypnotized patient, but continued in the patients who exhibited them. After two consecutive experiments an improvement was observed in one case of spontaneous paralysis. In a case of hemiplegia following an hysterical attack, M. Babinsky succeeded in causing the disappearance of paralysis after four consecutive experiments, such as above described. A method of treatment is thus determined. The author has proved by other experiments that hysterical symptoms are not the only ones capable of transmission. He succeeded in transmitting other symptoms, such as paralysis, tremor, etc., combined with organic changes of the nervous system. In these experiments, made in Dr. Charcot's ward at the Salpêtrière, suggestion or simulation was carefully avoided.

Fire at the University of Virginia.—The anatomical hall belonging to the medical department of the University of Virginia was destroyed by fire on the 20th of November. The loss is estimated at $8000, a portion of which is covered by insurance. The medical course will not be interrupted in consequence of the loss sustained.

The Baltimore Academy of Medicine has conferred its annual prize this year upon Dr. Frank Donaldson, Jr., and Dr. A. B. Arnold. These two gentlemen have submitted to the Academy papers of equal merit. Dr. Donaldson's paper was on "Diaphragmatic Pleurisy," and Dr. Arnold's on "Circumcision."

A Chair of Orthopedics in Naples.—The Italian Minister of Public Instruction has officially established a chair of orthopædic surgery at the University of Naples, designating Professor D'Ambrosio for the first incumbent.

A Curious Sewage Case was decided in a Detroit court, the other day, involving the right of a citizen to use a sewer constructed by private subscription in which he had refused to join. The Polish residents of a suburb since included within the city limits, had built the sewer, and asserted the right to exclude the non-paying neighbor from its benefits. In making his connection with the sewer, this person was assaulted by the Poles, and called in the police, by whom he was protected in the operation, and several of the Polish defenders of what they supposed to be their property were arrested. They sued for trespass and false imprisonment, and were nonsuited.

Jaccoud's Dictionary.—The fortieth and concluding volume of the *Dictionary of Practical Medicine and Surgery*, which has been brought out by Dr. Jaccoud, Professor of Clinical Medicine in the Faculty of Medicine of Paris, has just appeared. The complete work, the production of which has occupied many years, contains 33,000 pages and 3600 illustrations.

English Beri-beri Commission.—Drs. Pekelhäring and Winkler, of Utrecht University, have been commissioned by the Colonial Minister of Holland to proceed to the East Indies for the purpose of investigating the causes of Beri-beri.

Death under Chloroform.—An inquest was recently held at the Manchester Workhouse, Crumpsall, on the body of a man who died while under the influence of chloroform, administered for the performance of an operation. The jury returned a verdict of "Death from misadventure," and were of opinion that the drug had been skilfully and properly administered.

Charges for Disinfecting in Berlin.—A public disinfecting station has been established by the Berlin civic authorities, where as far as possible high-pressure steam is employed. For such articles—leather goods, for example—as would be injured by this process, chemicals are substituted. The charge is one dollar for each cubic metre of space occupied in the disinfecting chamber, while the articles requiring chemical treatment are charged at the rate of 80 pfennings, or less than twenty-five cents each per hour of treatment.

Pass and Pluck in Prussia.—During the past *annus medicus* in Prussia, of 434 candidates for the State examination for practitioners, the "one portal" to the profession, 175 were rejected, while 259 passed, 16 of them with the distinction "very good." Of 220 candidates for the pharmaceutical license, 190 passed, 30 being rejected.

Cremation.—On November 11th, the tenth cremation took place at the crematorium belonging to the Cremation Society of England, at St. John's Woking. The remains were those of a lady, aged forty-one, and

they were brought from the residence of the deceased in Leicestershire. The ashes weighed 3 lbs. 15½ ounces. It has been stated that the crematory is offensive during incineration of a body, but this is utterly untrue. Even to anyone standing on the crematory platform there is an entire absence of smell from even the burning wood, and no one could tell whether a cremation was taking place or not, so far as the sense of smell goes. This statement is but due to the founders of the Society, who chose the best system extant, a system which has been approved by the Paris authorities for erection at l'ère la Chaise.

A Fungus Developed in Human Saliva.—M. Galippe, having filtered saliva by means of Pasteur's apparatus, the filtered saliva remaining undisturbed, saw appear at the lower end of the filter, not in contact with the saliva, a mushroom made up of tubes of mycelium and of spores. By the advice of Prof. Max Cornu, M. Galippe has cultivated this fungus in Van Tieghem cells, and has been able to prove that it was neither an aspergillus nor a penicillium. This fungus, which has neither been described, nor drawn heretofore, belongs to the monilia family. M. Galippe proposes to give it the name of Monilia sputicola.

Women as Sanitarians.—The ladies of Beekman Hill and vicinity in New York City, have been organized into a Ladies' Health Protective Association since December, 1884. The Society now numbers 150 paying members. Their work met with a quick reward, and, for a time, nuisances were scarce. This success, possibly, made them less active, but now several nuisances have required new activity. They have attacked the slaughter-house nuisances, manure storage grounds, and the removal of all cows from the city. They will also undertake to better the condition of the tenement houses by compelling landlords to light halls by night and to keep them clean.

Typhoid from a Single Dose.—M. Dujardin-Beaumetz has forwarded to the Paris Academy of Sciences a communication on the Pierrefonds typhoid cases last summer. M. Fernet, who occupies a high post at the Ministry of Public Instruction, his wife and family, hired a house at Pierrefonds, a fashionable resort near Compiégne, contiguous to two others. After they had rented it for the season they were told to beware of the water in the well. On this account they drank exclusively mineral water until the last day, when the stock was out, and the servants were too busy preparing to return to Paris to go to fetch some bottles from the chemist. Madame Fernet said, "For once surely there can be no harm in drinking the well-water." They drank it. Six out of the nine persons have since died, including one of the servants. The cook, two of the four children, and Madame Fernet had had typhoid fever before, and though attacked again by it after their return from Pierrefonds, have got through the illness. The well has been examined and is reported to contain the bacilli which are believed to be associated with typhoid fever. This is a common danger to which visitors to so-called health resorts, both on the continent and at home, are frequently subjected. The facility with which well-water is infected is hidden from the population by the impunity with which filthy well-water may often be drunk by resident families who have become acclimatized, especially when that water is for the moment infected only by non-poisonous fecal matter, and this fancied immunity often leads to habits of carelessness, for which not only themselves, but their visitors have to suffer.

Obituary Record. — Dr. Cridland Crocker Field died suddenly at his home in Easton on November 26. He was born in 1817, and began the study of medicine as a private pupil of Dr. W. E. Horner, and was graduated with honors from the University of Pennsylvania in 1837. Both his father and grandfather were physicians, as are also his sons, Benjamin Rush Field and G. B. Wood Field. The operations through which he was best known were the removal of a cervical tumor, with ligation and excision of a considerable part of the jugular vein; excision of the entire femur; excision of the entire radius; extirpation of the parotid gland, which difficult operation he had performed several times. These operations placed him in the front rank of modern surgeons. His favorite region for operating was the neck, from which he frequently removed tumors which had entirely encompassed the carotid artery.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from November 30 to December 6, 1886.

Caldwell, Daniel G., *Major and Surgeon.*—Granted twenty days' extension of his leave of absence.—*S. O. 278, A. G. O.*, Dec. 1, 1886.

Ainsworth, F. C., *Captain and Assistant Surgeon.*—Will repair to this city and report in person to the Secretary of War, and, on completion of the duty which may be required of him, will return to his station (New York City).—*S. O. 280, A. G. O.*, Dec. 3, 1886.

Brown, P. R., *Captain and Assistant Surgeon.*—Leave of absence for seven days, granted by post orders, is extended twenty-three days.—*S. O. 124, Department of Arizona*, Nov. 24, 1886.

Fesson, Louis S., *Captain and Assistant Surgeon.*—Granted leave of absence for four months, to date from November 13, 1886. *S. O. 278, A. G. O.*, Dec. 1, 1886.

Clendennin, Paul, *First Lieutenant and Assistant Surgeon.*—Assigned to duty at Fort Davis, Texas.—*S. O. 166, Department of Texas*, Nov. 29, 1886.

Anderson, C. L. G. (recently appointed), *First Lieutenant and Assistant Surgeon.*—Ordered for assignment in Department of Arizona.—*S. O. 277, A. G. O.*, Nov. 30, 1886.

Ball, Robert R., *First Lieutenant and Assistant Surgeon* (recently appointed).—Ordered for duty in Department of the Missouri.—*S. O. 278, A. G. O.*, Dec. 1, 1886.

Woodhull, A. A., *Major and Surgeon.*—Ordered for duty at the post of Fort Leavenworth, Kansas.—*S. O. 138, Department of Missouri*, Dec. 3, 1886.

Carter, Edward C., *Captain and Assistant Surgeon.*—Leave of absence extended six months.—*S. O. 281, A. G. O.*, Dec. 4, 1886.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending December 4, 1886.

Farwell, Wm. G., *Surgeon.*—Detached from the "Kearsage," proceed home and await orders.

Gatewood, P. A., *Passed Assistant Surgeon.*—Detached from the "Kearsage," proceed home and await orders.

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ORIGINAL LECTURES.

CLINICAL ELECTRO-THERAPEUTICS: SOME PRACTICAL POINTS IN THE TREATMENT OF DISEASES BY THE VARIOUS MODES OF THE ELECTRICAL FORCE.

Being a Clinical Lecture delivered at the Jefferson Medical College Hospital.

BY ROBERTS BARTHOLOW, M.D., LL.D.,

PROFESSOR OF THERAPEUTICS AND MATERIA MEDICA IN THE COLLEGE.

GENTLEMEN: It is my purpose to-day to utilize some of the cases we now have here, and which have also happened under my observation elsewhere, to set forth some practical points in respect to the uses of electricity as a remedy for certain morbid states. I am the more inclined to the discussion of this subject, because, as must be evident to every observant physician, an "electrical revival" is now in progress. Whilst we should not be inattentive to such professional movements, we should guard against that illogical enthusiasm which takes no note of objections, but hurries on to one-sided conclusions. My position is that electricity is a most admirable remedy when used in appropriate conditions, and that its utility has the same kind of limitations as those which belong to any other therapeutical agent. The actual value of electricity is still a *vexata questio*. In the medical profession, as in the other spheres of human thought and action, there are always two opposing parties—the optimists and the pessimists, the orthodox believers and the nihilists. The former accept everything unhesitatingly; the latter deny everything and ask for proofs, but they do not apply the Socratic method further, for, when the proofs are forthcoming, they continue to deny. A position of mere negation settles nothing. The Scriptural injunction to try all things and hold fast to that which is good, is the true position for us to assume.

One of the most significant facts of the electrical revival is the use of galvanism to remove inflammatory deposits so situated as to be within the immediate influence of the poles. The terms "catalytic" and "cataphoric" are now used to explain this action, but it must be confessed the notions associated with them are rather hazy. There seems to be an impression amongst the new advocates of the use of galvanism to cause the disappearance of exudates, that this phrase, catalytic, is new, and hence that the conception embodied in it is also new. This is an error, for if anyone will take the trouble to look over the work of Dr. Robert Remak, of Berlin—the apostle of the modern galvanic dispensation—he will find not only the word "catalytic," but, for the most part, a very true conception of the nature of the action.

We have here various cases that illustrate the utility of galvanism, and I have had many in my private practice. Amongst those seen here are cases of recent deposits about the joints the result of rheumatic inflammation, cases of exudations about enlarged and inflamed lymphatic glands, and a case, in especial, in which subacute pleuritis with extensive exudation set up changes in the lungs characteristic of that form of phthisis. I must call your attention to this example of the success of electrical treatment. This young man, the son of one of the College janitors, is now employed here, and you see him every day. He is now in robust health and seems to have recovered, but when he was put on the electrical treatment he was thin, weak, had a severe cough, night-sweats, diarrhœa—indeed, all the symptoms of consumption, and the physical corresponded with the rational signs. Every day for a long time the intercostal spaces were acted on by a strength of current sufficient to cause contraction of the muscles. The diarrhœa was arrested by phosphate of sodium; his general condition slowly improved, the chest troubles subsided, and you see the result in the robust young man before you.

We have here during the winter, many cases of rheumatism, in which effusion about the joints, weakness of the member, and constant pain and soreness, remain after acute attacks. In such cases we get the best results by a combination of electrical methods; by the use of galvanism to the joints and to the cervical sympathetic faradization, of the weakened muscles, and also general faradization. We make the galvanic applications to the joints in two modes: by the polar, and by labile movements of the pole. You are doubtless aware that the fluid about the joint, in a state of rheumatic inflammation, is strongly acid in reaction. It is now supposed that the rheumatic trouble is due to the presence of a form of lactic acid; it is known that the gouty paroxysm is caused by uric acid and urate of soda deposits. Now for the explanation. According to the laws of electrolysis, or decomposition by electricity, the acids appear at the positive pole and the alkalies at the negative. It follows, therefore, that if the negative electrode be placed over the affected joint, the alkali—potassa and soda—will be diverted thither. Hence the utility of the negative pole kept in contact with the joint for a time (stabile application). There are, however, other elements in this therapeutical problem.

We know that a galvanic current can act on the vessels of a part, and improve its nutrition by increasing the blood supply. Please consider this point with care. Onimus affirms that a descending galvanic current causes increased action—the vermicular motion—of the vessels, and in this way promotes the circulation in a part. Now this is true to a certain extent, although not generally accepted. It is true of mild currents of five to ten, possibly, fifteen milliampères, but it ceases to be true when a strong current of thirty to sixty milliampères is passed. The strong current throws the vessels into a tetanic state, and thus produces an exsanguine condition of the part acted on. I have ascer-

tained this lately by careful comparative examinations, and can, therefore, announce it as a fact.

How apply this important fact to the treatment of a joint in which a rheumatic inflammation has occurred? The vessels are left in an enlarged and relaxed state; their contractility impaired. To relieve this condition mild descending labile applications are required. In other words, the positive pole or anode is placed above, over the course of the principal arterial vessels, whilst the cathode or negative pole is slowly brushed over the affected joint. In this way applied, a mild galvanic current (five to fifteen miliampères) restores the tonicity of the vessels and promotes absorption of effusions.

Besides the local applications intended to accomplish the purposes just indicated, it is useful to act on the cervical apparatus. The positive pole placed in the fossa behind the angle of the jaw, and the negative on the epigastrium, we bring within the circuit the sympathetic ganglia, the accelerator and inhibiting nerves of the heart. We frequently hear of adverse criticism of this procedure, which we also owe to the genius of Remak, but I believe those who criticise have not really considered the question properly. This mode of application brings into action the great central apparatus of the circulation, and the effect is to increase the tone of the vascular system throughout. By this method Meyer, of Berlin, asserts that he has caused the disappearance of rheumatic nodosities of joints. Although optimist as I am said to be, I cannot quite accept such a statement.

Beside the galvanic treatment in the cases of rheumatic joints, it is our custom to faradize the muscles that have been weakened and wasted by the persistent rheumatic inflammation and by the consequent disuse of the limb. Just that strength of current required to cause muscular action is the strength used; but, as you have observed, we do not act on the muscles until the joint troubles have subsided.

Now, gentlemen, I wish to put before you some very striking facts showing the power of the galvanic current to effect the removal of inflammatory exudations. I refer to the results of pelvic inflammations in women. As I am not a gynecologist I do not see the large number of cases of pelvic inflammations that occur to the specialists, but it does happen me, comparatively often, to have patients suffering with nervous conditions in large part the outcome of such local diseases, and partly also of the means used to combat them. For the last three years current medical literature in this country, and especially in Germany, has contained many papers with illustrative cases showing that by the persistent use of galvanism exudations in the pelvic cavity, chronic metritis, uterine fibroids, and subinvolution of the womb are cured. Whilst the treatment is going on a simultaneous improvement in the general condition of these patients is also noted, and nervous phenomena of considerable severity disappear.

You will wish to know, of course, how to proceed in the electrical treatment of these cases. I need hardly observe that galvanism is used, and that the strength of the current, and the position of the electrodes are determined by the morbid conditions to be removed. To pass from the simple to the complex I refer first to the cases of subinvolution of the uterus, that state of the organ sometimes succeeding to delivery, in which from various causes involution does not take place, the womb remains voluminous, its vessels dilated and atonic, its mucous membrane the seat of a catarrh. When in this condition, partly because of its great weight, and partly because of the state of its annexed and associated organs, the uterus is apt to become misplaced. Obviously here, two objects are to be accomplished: to induce firmer contractions of the muscular tissue; and to restore the tone of the vascular apparatus. One electrode—the negative—is introduced into the vagina in contact with the uterus; the other—the positive—is put on the abdomen. The vaginal electrode should be perfectly insulated up to the metallic button or cylinder in which it terminates. If currents of great intensity are to be used, the metallic terminal of the electrode should be covered with absorbent cotton well moistened. The external electrode should be a large, well-moistened sponge. The negative is the vaginal electrode, because at this the alkalies appear, and it is therefore less irritating and at the same time more resolvent in its action. When the intention is merely to act on the organic muscular fibres sufficiently to increase the contractile action of the uterine elements and the vermicular movement of the vessels, a mild current—five to fifteen milliampères—suffices; but if on the other hand decided electrolytic effects are desired, and congestion is to be removed, much stronger currents are required—thirty to forty milliampères. I have already stated this, but the facts are important enough to warrant their repetition. In the condition of subinvolution the stronger currents are needed to remove the congestion.

In the cases of chronic metritis, of pelvic exudations, and of fibroids, our purpose is to increase the nutritive activities of the diseased parts, and this we effect by persistent and uniform applications of currents of moderate intensity.

In this connection, gentlemen, I must not fail to call your attention to a very important application of electrolysis. I refer to the electrolytic treatment of urethral stricture—a point of practice which we owe chiefly to Dr. Robert Newman, of New York. My own experience has been rather slender, and hence I must avail myself of the experience of others. This method has evoked much unfriendly criticism. Practical surgeons are, as a rule, intolerant of those procedures which seek to cure surgical maladies on other lines than regularly orthodox principles. In some instances discredit has fallen on the method by the failure of physicians who attempted to cure stricture of the urethra by electricity, without a suitable equipment of apparatus, and of knowledge of the essential details. In a brochure lately published, Dr. Newman has exhibited the cause of the failures in a series of extracts from the letters of correspondents. If I had not frequently received such letters, I should have found it difficult to credit the existence of such impossible ignorance. What can be expected of a man who attempts the electrolytic treatment of stricture, with an old magneto-electric machine turned by a crank, the urethral electrode being a *rubber catheter!* And yet it is such self-satisfied ignorance that we find criticising electrical methods, and saying, with an air of judicial severity, "I have tried electricity, there is nothing in it." Truly there is nothing in it to such incompetents.

Attention to certain details is necessary to success. One

of the small portable batteries, zinc-carbon, of twenty elements, suffices. The urethral electrode must be an insulated sound with an ovoid bulb of metal, and having a short rather than a large curve, A current of three to five milliampères, Dr. Newman says, is strong enough, but when the patient is not impressionable, five to ten may be used. The rules I have already formulated, based on physiological data, indicate that in such a condition, the weaker rather than the stronger current must be employed. The applications must not be made often, especially not if any irritation be produced, for absorption can go on no faster than the natural powers can effect it. As to the results, Dr. Newman states that failures are the exception, and in the past year many cases have been reported confirming this view. My own experience, very limited, it is true, has been favorable, and I was informed the other day by Dr. Wolff of a highly successful case treated by him. It must be a bold and uncompromising pessimist, indeed, who can deny in the face of all this evidence.

A case of sciatica, which we have been treating here to-day, reminds me that galvanism is one of the most precious remedies we have in that affection. Of course, we do not cure all cases, any more than we accomplish the same impossible task with any other single remedy. Cases of sciatica may be arranged in several groups, and our remedies must be selected accordingly. The largest group contains those cases caused by some diathesis—the rheumatic, the syphilitic, the plumbic, etc.; the next consists of those produced by some sudden and considerable exhaustion of the nervous system, as sexual excess in the newly married; and the third group is made up of all the conditions inducing neuritis, especially mechanical injury to the nerve. These several causes of the nerve-pain must be removed, if a complete and permanent success is to be obtained.

But I will not stray off into these subjects: my purpose is to say something of the electrical treatment. I wish to emphasize the fact that for severe and protracted cases of sciatica the strongest current that can be borne is the most effective. This is a truth not generally appreciated at its real importance. Indeed, I supposed myself to be almost the only one who really had a true conception of it, but about two years ago, Dr. Gibney, of New York, published a paper advocating the same doctrine. The severest example of sciatica that has ever come into my hands, was cured in two weeks by a current strength which caused intense burning pain, and could be endured but a few minutes at a time. The patient himself, who could only get about by the aid of crutches, soon saw how much more relief was to be obtained by the strongest applications that he could endure, and hence he bore, without protest, a degree of burning that otherwise he would hardly have been willing to experience. The cases of sciatica due to recent neuritis, as yet involving no actual changes of structure, need also sufficiently strong applications to cause contractions of the vessels of the parts in a state of congestion. The electrodes should be thoroughly moistened, the metal disks or carbons well covered, and labile applications made, and also stabile, the latter predominating. Old cases, in which exudations have occurred in and about the nerve, and trophic changes, consisting in more or less wasting of the limb, and in which lesions of sensibility and motility have also taken place, are best treated by the milder stabile applications long continued, both as to the duration of each *séance*, and as to the time occupied in the whole treatment.

I must also insist on another fact, that longer individual applications are required than those now enjoined on the operator. Sessions of five, ten, and fifteen minutes are usually recommended, when much better results would be obtained from them if twice or three times as long. The care with which the shorter sittings are prescribed, seems to be intended for the benefit of the doctor, by saving time, rather than the improvement of the patient's malady. A little reflection will make the truth of this clear. It can hardly be doubted that when a decided change in the nutritive condition of parts long the seat of inflammatory deposits is to be made, there must be considerable time required. The resistance to be overcome to reach the seat of disease, the modifications to be made in the dynamical and physical condition of exudations, and the process of absorption and excretion after the materials are prepared for it, all need a certain space of time and a certain amount of power to accomplish. Now, power also needs time for its development.

This reminds me that it has been suggested to obviate the resistance opposed by the tissues overlying the affected nerve, by introducing more or less deeply as may be necessary, acupuncture needles, insulated up to near their points. Besides the pain caused by inserting the needles, very considerable burning pain is excited by the current. I have made use of this plan a few times, but I do not find that it has any advantages over simple acupuncture. So much pain is induced by the current that I have not succeeded in using more than three milliampères.

A case of infantile paralysis, so-called, present here to-day, and of which we have many examples from time to time, induces me to make some observations on the use of electricity in this affection, which is so interesting from the point of view of the electrician. A proper diagnosis of this malady cannot be made without the aid of galvanism and faradism. Do not misapprehend me by supposing that I mean no diagnosis can be made—only that an entirely correct diagnosis is not possible without the use of certain electrical appliances. That you have seen here from time to time, as in the cases now under treatment before you. The therapeutical diagnosis must be made before we can use the remedy intelligently. I mean by that, we must ascertain the condition of the paralyzed muscles as to their response to galvanic and faradic excitation, before we can decide on the form of electricity to be employed. If, now, I apply a faradic current to the paralyzed muscles of this child, and get no contractions, and yet, when I send a mild galvanic current through them, there are brisk contractions, I conclude that the muscles are in the condition known as "reaction of degeneration." It is the peculiarity of some cases of paralysis, in which the lesion is in the anterior cornua of the spinal cord, that with the loss of power there occur wasting of the muscles, and in these we find the reaction of degeneration most characteristic. In these cases, also, the good effects of electricity are most conspicuous, but before promising how much to accomplish, be very sure that you have correctly ascertained the real state of the paralyzed parts.

When a child, having one or several members paralyzed in consequence of an anterior poliomyelitis, is brought to you for treatment, you may promise much if the muscles react to the faradic current, however feebly; but be reserved when they react only to the galvanic, and be responsible for nothing when neither current causes the least movement. If, however, the muscles are much wasted, and only galvanism moves them, but the joints are intact and no contractures or deformities have been brought about, you may speak hopefully of the results of persistent electrical treatment. If the muscles yet react to faradic stimulation, that is the current to use, but only strong enough to give the muscles some motion, and thus exercise them gently for fifteen minutes every day. Do not make the mistake of those electrical enthusiasts who use the current so vigorously as to tire the muscles. Furthermore, the character of the interrupter with which your machine is fitted is an important element in the success of the faradic treatment. You observe that the faradic instruments in use here have an arrangement that permits slow or rapid interruptions. The machines of Flemming and of the Galvano-faradic Company of New York, are the only ones that I know of which have a satisfactory interrupting hammer. When arranged to run slowly, you observe at each break in the circuit there is a distinct muscular contraction followed by an interval of complete relaxation. The Neef's hammer arrangement vibrates so rapidly that the muscle is tetanized for the time being, and hence is more quickly fatigued, because the contraction is not a physiological one.

Beside the local treatment of the paralyzed muscles, it is very necessary to act on the spinal cord, the real seat of the lesions. As the condition of the cells of the anterior cornua is one of impaired nutrition, the descending stabile current—not too strong, from ten to twenty milliampères—is that which brings about the best results. The positive pole should be placed over the cervical vertebra, the negative on the sacrum, the sponges well moistened and kept in position (stabile), and the current made to pass for ten to fifteen minutes.

You are no doubt aware, gentlemen, that a similar disease to that called infantile paralysis, occurs, also, in adults, but it is not often encountered here, and at present we have no example of it. We do have, however, cases of neuritis which resemble in respect to their merely objective symptoms those paralyses due to disease of the multipolar ganglion cells of the anterior cornua. The reason for this similarity is found in the fact that when motor-nerve bundles are changed by an inflammation, the muscles innervated by them undergo the alterations of structure manifested by the "reactions of degeneration." Late experiences have proved that neuritis is a common cause of certain sensory and motor disorders—cramp, paralyses, neuralgia, and anæsthesia. One of the practical experiences of the new developments regarding neuritis, is the curative effect of rightly applied electrical treatment. As I have just had something to say on this topic, there is no need to occupy further time with it, the more especially as I wish to make some practical observations on a nervous state very common in these days, called by the general public "nervous prostration," and by the medical profession *neurasthenia*. Having had no inconsiderable experience with this malady, I have formed some opinions in regard to its therapeutical management which I wish to put before you so far as the electrical part of it is concerned. I may, however, so far diverge from this, as to give a definition of neurasthenia as a basis for the treatment.

From my point of view neurasthenia consists essentially in an exaggerated susceptibility to bodily impressions and false reasoning thereon.

I will not stop to explain or defend this view. Some of the reasons for it may appear during the course of the exposition of the electrical treatment; but for the present I have merely to speak of the kind of electrical applications most effective. Since the advent of statical electricity, that mode of the force has occupied the first place in the estimation of the French school of neurologists; but in Germany the various forms of electrical baths have got to be the fashion in the treatment of neurasthenia. It is quite apparent, indeed, that the best results have been obtained from those forms of electrical treatment most complicated and imposing, or, in other words, that most appeal to the wonder-sense of the patient. It might be assumed from this that any treatment will be successful if it make a sufficiently profound impression on the morbid consciousness of the patient. Not so. Although the "faith cure," the "mind cure," and other similar psychical agencies have had some successes, they have not been so numerous and unequivocal as to justify the belief in their individual sufficiency. That such an influence will change the mental state from one of depressed self-esteem and of illusions of sense perceptions to one of hope in which everything seems possible, is surely a clear indication of the mode in which the electrical applications help to bring about a normal state.

The two methods of electrical treatment best adapted to cure neurasthenia and allied states are general faradization and central galvanization, and they should be used in alternation; but the former is applied for a longer time than the latter. General faradization, first proposed by the late Dr. Beard, of New York, consists in applying the electric brush excited by a moderate current of faradism to the whole surface of the body. One electrode—a moistened sponge—can be placed on the neck, and the other electrode, holding a wire brush, is passed over every part of the body, or the feet may rest on a metallic plate covered with felt, or be placed in a vessel of warm salt solution. Beard's method has not been popular in this country, partly because of prejudice against the author of it, and partly because regarded as unscientific. The criticisms have not been just. In Germany Beard's method has been practised by some of the most eminent neurologists, who have not failed, also, to point out that general faradization and the dipolar electric bath are almost identical. In the latter, however, the current reaches all parts of the body in nearly the same moment of time, and this constitutes the only difference. It is doubtful whether this be an advantage.

In using general faradization only such a current strength is advisable as affects the sensations agreeably. One of the real objects of the method is to change the morbid perceptions of peripheral impressions. It is not wise to effect this by an action of a painful kind. Daily *séances* of fifteen to twenty minutes are best.

Central galvanization, which we also owe to Beard,

consists in the application of the electrodes so as to bring within the circuit the cervical sympathetic, the pneumogastric, the phrenic, the cervical portion of the cord with its bundles of nerves, and the dorsal portion of the cord with its connecting nerves. The first step consists, as you often see here, in applying the positive pole to the fossa behind the angle of the jaw, and the negative to the epigastrium. The negative continuing in the same position, the positive pole is next moved to the nape of the neck, where it is permitted to remain for a time, and afterward moved down the spine to a point opposite the negative electrode. By this manœuvre, it is supposed that the great solar plexus is acted on as well as the parts already mentioned.

Within the past few years, it has been quite the fashion, I know, to decry Remak's method called "galvanization of the sympathetic;" and the claims put forth by this great electrician and his followers may not be tenable, but it will be hard to convince any practical electrician familiar with the effects of this procedure that it is not a distinctly useful practice. I may make the same remark respecting Beard's central galvanization. It may not consist in excitation of the parts I have named as brought within the circuit, but it is an effective means of accomplishing certain objects, and of these especially the increase in the vital activity of the great organs of vegetative life. In cases of neurasthenia this central galvanization is the more necessary, in that in most cases the first morbid sensations of the patient, which awaken that illusory self-consciousness that plays so important a part in this nervous state, have their origin in the abdominal organs.

The effects of central galvanization are well shown in exophthalmic goitre. This malady is a functional derangement of the cervical sympathetic, and, in consequence, the action of the heart is greatly increased, the vessels of the neck and head much dilated, the thyroid gland enlarged, and the eyes protruding. When a stabile galvanic current is passed through the sympathetic ganglia of the neck under these circumstances, the pulsations of the heart are lessened in number, the vessels contract, the thyroid shrinks, and the eyes become less prominent. It is true when the current ceases to pass, the effects disappear in large part, but if the applications be continued, finally the functional derangement disappears, and the normal condition is resumed again. As I have in various instances witnessed, exophthalmic goitre is curable by galvanism alone. Now, if the results which we can see take place under galvanic stimulation, is there any reason to discredit those which are said to be produced in neurasthenia by central galvanization? I hope you have distinctly realized the principle which governs the practice under these circumstances.

Let me repeat it with emphasis. When our object is to secure contraction of the vessels, we use strong galvanic currents occasionally interrupted; when we desire to improve the activity of the circulation, and promote nutrition, we use milder currents and stabile applications of sufficient duration. The latter is the method required in neurasthenia, for the most part; the former in exophthalmic goitre.

Many other tempting subjects are suggested by the cases in attendance, but my time having now expired, I must defer the consideration of them to another day.

ORIGINAL ARTICLES.

A SUCCESSFUL NEPHROLITHOTOMY.

BY SAMUEL W. GROSS, A.M., M.D., LL.D.,

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JOHN R., a coal miner, æt. thirty-three, was admitted into the Jefferson Medical College Hospital on October 1, 1885, having been sent to me for an operation by Dr. D. T. Jones, of Plymouth, Pa., who had diagnosticated the existence of a stone in the left kidney. Repeated examinations of the urine, made by Dr. Jones during the preceding two months, disclosed a small quantity of albumen, a few tube casts, numerous mucous casts, crystals of oxalate of lime, and a few pus and red blood corpuscles. The patient, during the entire period of Dr. Jones's attendance, suffered from malarial fever, accompanied by vomiting, which induced intense pain in the left loin, and after which the urine was smoky. During the past two months he has lost twenty-three pounds, which he attributes to the chills and fever.

Palpation of the loin and abdomen failed to detect any fulness or hardness, and forcible pressure was unattended with tenderness. There had never been an attack of renal colic, and the urine was passed, on an average, only three times during the twenty-four hours. Daily examinations of the urine during the interval which elapsed from the date of his admission to that of the operation disclosed that the fluid was acid, of sp. gr. 1.022–1.024, and that it contained a trace of albumen, some red blood disks, strings of mucus, epithelium similar to that lining the pelvis of the kidney, and an abundance of crystals of oxalate of lime, with some fragments of the same nature.

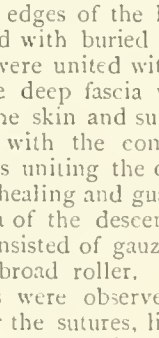
Until four years ago the patient had enjoyed good health, when he was seized with a dull, heavy pain in the left loin, which extended toward the median line of the abdomen, between the umbilicus and the pubes. This pain remained constant for two years, was relieved by recumbency, but set in again as soon as he got on his feet; and was occasionally sharp, and felt about the crest of the ilium. During the past two years it was not experienced daily. Throughout the entire time the pain was greatly increased by work, by rapid exercise, by railway travel, and by coughing, and on the day following such exacerbations he passed bloody urine once or twice. On one occasion, five months ago, after an attempt to work, he had an attack of retention of bloody urine, which was occasioned by five clots, each of which was about an inch long, and of the diameter of a large straw. Since the date of the appearance of the first symptoms he has been incapacitated from earning his living, every effort at work being followed by a paroxysm of severe suffering and hæmaturia.

Although frequency of micturition was conspicuous by its absence, and there was no swelling or tumor of the loin, nor tenderness on rough manipulation, nor renal colic, the almost constant pains, which were greatly aggravated by motion,

and the acts of vomiting and coughing, and the hæmaturia, along with the presence of strings of mucus, epithelial cells similar to those lining the pelvis of the kidney, and crystals and fragments of oxalate of lime, left little room for doubt as to the existence of an oxalate of lime calculus in the renal pelvis.

On October 13th, the patient having been placed under the influence of ether, and resting on his right side with a pillow under the abdomen and loin, an incision, four inches and a half long, and beginning at the edge of the erector spinæ muscle, was made parallel with the last rib, and three-quarters of an inch below it, and carried through the successive layers of muscles and aponeuroses, until the perirenal fatty tissue was reached. During this stage of the procedure two arteries in the latissimus dorsi and internal oblique muscles were secured with catgut ligatures. The circumrenal fat having next been torn through with forceps, the index finger, passed over the posterior surface of the kidney, came in contact with a hard substance at the site of the central infundibulum of the organ, which, on the insertion of a long needle, proved to be a stone. The overlying renal tissue was then scratched through with the finger-nail, and extraction attempted with a small lithotomy forceps. This failing, the anterior wall of the belly having been pressed backward by an assistant, the object was accomplished by the combined use of the finger and scoop, and the slight hemorrhage was arrested by pressure with a sponge wrung out of hot water. A drainage tube, with a lumen of nearly five-sixteenths of an inch in diameter, having been inserted close up to the opening in the kidney, the edges of the lumbar aponeurosis were approximated with buried catgut sutures, the divided muscles were united with two tiers of the same material, the deep fascia was secured with a single row, and the skin and superficial fascia were brought together with the continued silk suture. The objects in thus uniting the divided tissues were to facilitate rapid healing and guard against the occurrence of hernia of the descending colon. The outer dressings consisted of gauze and jute, secured in position by a broad roller. The strictest antiseptic precautions were observed throughout, the materials used for the sutures, ligatures, and dressings having been prepared with the usual solution of corrosive sublimate, and the instruments having been thoroughly scrubbed and soaked in a three per cent. solution of carbolic acid.

The stone weighed fifty-eight grains, was composed of oxalate of lime, and, as is shown in the



woodcut, was heart-shaped, rough on its exterior, and seven-eighths of an inch long, six-eighths of an inch broad, and a quarter of an inch thick. The kidney appeared to be perfectly normal in size, contour, and consistence, and there was not the slightest evidence that it contained pus.

For the first twenty-four hours the patient suffered from pain and slight shock. The pulse was 120, the temperature 98°, and he vomited frequently during the night. These symptoms were allayed by the hypodermatic use of atropia and morphia, and iced dry champagne. The catheter drew off twenty-seven ounces of clear urine. At the expiration of thirty hours the dressings were changed, when they were slightly stained by bloody urine. At this time the urine passed by the patient was tinged with blood, and it continued to be of this nature for twenty-four hours.

From this time until his discharge the patient did admirably. On the fourth, thirtieth, and thirty-eighth days, he suffered from chills, during which the temperature ran up to 103°, but which readily yielded to thirty grain suppositories of quinine. For the first two weeks the daily quantity of urine passed by the urethra varied between eighteen and thirty ounces; during the third week between twenty-nine and forty-seven ounces; during the fourth week between fifty-four and seventy-five ounces; and after this period, on several occasions, considerable quantities of urine passed from the sinus, when there was a corresponding diminution in the quantity passed by the urethra.

The entire wound, with the exception of the point of emergence of the drainage tube, healed by the first intention, and the continued suture was removed on the twelfth day. The dressings were changed as often as occasion demanded. The drainage tube was shortened and replaced by others of smaller calibre from time to time, but it was not finally dispensed with until November 29th, when the patient left his bed. The sinus had closed on December 5th. The man was sent home on December 9th. He had gained much in flesh, was perfectly free from suffering, and in every respect comfortable.

Remarks.—The case now narrated is another illustration of the debt which surgery owes to Mr. Henry Morris, who was the first, in 1880, to remove a stone from the otherwise healthy kidney, that is to say, a kidney not distended by pus or urine. By an early resort to nephrolithotomy the functions of the kidney are not only preserved, but suppurative destruction of the organ is prevented. The procedure is, moreover, comparatively safe, more successful, indeed, than lateral lithotomy in the adult. Thus, of 34 cases of which I have a record, 3, or 8.8 per cent., perished, 1 from the effects of morphia, 1 from blocking of the opposite ureter by a calculus, and 1 from pyæmia. If these results be compared with those following the removal of a stone from a disorganized kidney, the contrast will be seen to be most striking, since, of 33 cases of nephrotomy for calculous pyelitis or pyonephrosis, which I have collated, not less than 11, or 33 per cent., died.

In the majority of examples of nephrolithotomy the stone was small. In four instances, however, it weighed respectively four hundred and seventy-three grains, five hundred and fifty-six grains, two ounces, and two ounces and a quarter; and it is noteworthy

that these cases recovered. The most remarkable case on record is that of Clement Lucas, in which, on account of suppression of urine for one hundred and two hours, a calculus was removed from the left kidney of a patient whose right kidney had been extirpated, three months and a half previously, on account of calculous hydronephrosis. This case shows that there is little fear of the operation seriously interfering with the secretion of the urine; and, taken in connection with the fatal case from blocking of the opposite ureter by a concretion, it demonstrates that the trouble was symmetrical in 2 of the 34 examples in which the operation has been performed. It may also be mentioned that all of the recoveries were perfect, except the first case of Morris, in which a sinus persisted five years subsequently.

Under no circumstances should an otherwise healthy kidney be extirpated on account of a stone. The symptoms of renal calculus being present, the organ should be cut down upon and explored with the finger and needle, and by incision, if the other methods fail to detect it. Such a procedure has thus far proved to be perfectly safe, as is shown by 29 cases in which a stone was not found, and which I have collated. All recovered, and in four the organ was cut into. Hence, of 63 examples of attempted or accomplished nephrolithotomy, only 3, or 4.76 per cent., perished, a measure of success which is seldom attained in any other capital operation.

NOTES ON THREE CASES OF TROPICAL BERI-BERI, AND ON SOME ANALOGOUS INDIGENOUS CASES OF MULTIPLE NEURITIS.[1]

By E. C. SEGUIN, M.D.,
OF NEW YORK.

Having been courteously invited to participate in this evening's symposium on neuritis, I bring my mite of contribution in the shape of the relation of three cases of beri-beri, which, coming from tropical parts, have been under my care. That this disease is rarely seen in our latitudes, though very common in South and Central America and in the islands of the Gulf, I infer from the fact that it has not, to my knowledge, been discussed in medical societies or in private relations in New York during the past ten or fifteen years.

My apology for relating the following cases is that they well illustrate the prominence of neural symptoms in beri-beri, and that they justify the opinion expressed by a number of observers (Dr. B. Scheube and others) that beri-beri, or kak-ke, as the affection is called in Japan, is essentially a multiple, poly- or pan-neuritis, occurring as an endemic infectious (?) disease in many countries of the globe in both hemispheres. That beri-beri, or kak-ke, is nothing more than a multiple neuritis I am not prepared to say, and, indeed, my experience is so extremely limited that I can only use my cases to illustrate the probable neural origin of many of the symptoms of the disease.

In looking for notes of cases of multiple neuritis occurring in my local practice I found several. One, very typical, was recorded under the title of alcoholic polyneuritis; others were included in my essays on poliomyelitis anterior,[1] as examples of that disease. These three cases were marked by the ordinary symptoms of multiple neuritis—numbness, and partial anæsthesia, irregularly distributed atrophic paralysis, with degenerative reactions; and, besides, by œdema of the extremities. I was struck by the resemblance of these cases, thus symptomatized, to mild cases of the mixed form of beri-beri. There is quite a resemblance, if not a similarity, between Cases I. and II. of the category of beri-beri and Case I. of the category of indigenous neuritis.

Another aspect in which a study of beri-beri is of interest to us, is that the disease may take root and acquire considerable development in the United States. It appears that the affection has prevailed in Para, Brazil, for only a few years, perhaps only since 1878, having been brought there from Southern Brazil and Paraguay; and, as it is not uncommon in Cuba (at least the so-called wet form), it may very well show itself in the Gulf States.

With this brief preface, I pass on to the cases themselves.

First Category: Cases of Beri-beri.

Case I.—A Cuban lawyer, aged twenty-six, consulted me September 9, 1885, with letters from Drs. Landeta and Desvernines, of Havana, of which the following is an abstract: Married man of good constitution. Never had syphilis, scrofula, or paludism: never seriously ill. In summer and autumn of 1884, dyspeptic symptoms.

Symptoms of present illness: (1) Early in November (1884) pains in lower third of both legs. (2) In a few days these parts were slightly œdematous, while the malleoli and feet remained free from swelling. (3) Simultaneously, cardiac palpitations; rapid pulse, from 110 to 120. (4) Some muscular weakness was noticed in legs; walk difficult and done on tip-toe, or on fo ward part of foot. (6) Toward end of November the pulse was steadily 120 or more beats; large objective palpitations and souffles were noticed over cardiac area. (7) Œdema appeared in the face, invaded the whole of the legs, thighs, feet, and genitals. (8) The muscles of the thighs and legs became soft and painful to touch: there seemed to be intramuscular œdema. Toward the end of the month patient was unable to leave the bed; the palpitation was intense, and there was great dyspnœa. The thenar and hypothenar eminences became soft; the patient could no longer write, or use fork, spoon, etc. Later the weakness became such that the legs could not be lifted from the bed: face was nearly twice its normal size. The patellar reflex was abolished. Some muscles showed loss of contractility under electricity (*vide infra*).

As a summary of symptoms in the fourth and fifth weeks of the disease, it may be said that there

[1] Read by invitation before the Philadelphia Neurological Society, November 22, 1886.

[1] Myelitis of the Anterior Horns; or, Spinal Paralysis of the Adult and Child. New York, 1877. (Private edition, 1874.)

were anasarca, paralysis with electrical changes in certain muscular groups, cardiac bruits, with pulse up to 140 beats per minute, dyspnœa. At no time was there fever, and no albumen or sugar was ever found in urine.

Under the use of infusion of digitalis, cinchona, and nutritious food, these symptoms abated, and there was decided improvement by the end of December (eighth week). Under electrical treatment and sulphur baths the motor paralysis gradually passed off, and the patient was able to stand in March: steady improvement thereafter continued, the cardiac symptoms had about ceased by the end of December.

Dr. Desvernine's letter refers more particularly to the state of the heart, and to the electrical reactions. At the height of the disease the heart was enlarged, more especially the left ventricle, and the murmur heard was a mitral regurgitant one. These signs were due, Dr. Desvernines believes, to myocardial lesions; the endocardium being unaffected. This view is borne out by the disappearance of the symptoms.

There was an apparent pseudo-hypertrophy of all muscles of the body (œdema). A piece of muscle removed by Duchenne's trocar showed simple atrophy of its muscular fibrillæ with intramuscular œdema and proliferation of the connective tissue. The electrical reactions were not taken during the acute period of the disease, but afterward were very fully studied, and there were found with both currents the "reactions of degeneration characteristic of perverted nutrition in nerve and muscle."

The diagnosis made by Drs. Landeta and Desvernines was beri-beri or kak-ke, of the mixed form, and Dr. Desvernines recognized in the case the grounds for the views advanced by Scheube and Balz (from studies of the disease in Japan), that it is essentially a multiple neuritis. It is interesting to add that, while the wet form (anæmic œdematous type) is well known to the physicians of Cuba and Havana, not one of several who saw this case with Dr. Landeta had seen an example of the mixed form.

When I examined Señor M. about ten months after the beginning of the attack, he presented no objective symptoms except a degree of abnormal flushing of the face. Excepting a slight quantitative reduction in contractility of the calf muscles, I noticed no abnormality in the faradic and galvanic reactions of nerve, trunk, and muscles. The pulse was slow, from 57 to 63, and the heart normal in size and sound. The patient complained of occasional vertigo, and want of power of mental concentration. He was well about October 10th.

Case II.—Mr. J. G., a married man, thirty-eight years of age, a native and resident of Panama, was brought to me, for consultation, by Dr. Pio Rengifo, of New York, on November 17, 1885. Is a tall, strongly built man, who has enjoyed good health, except that sixteen years ago he had a single chancre with suppurating buboes, but no secondary symptoms. Had a year's treatment with Dupuytren's pills and iodide of potassium. A healthy child has been the result of marriage. In the past eight years occasional palpitations, supposed to be due to gastric disorder. Is temperate in use of stimulants. About two months ago noticed numbness in toes and fingers. This has continued as a constant symptom, affecting tips of fingers, toes, and forward part of soles; on lying down, however, there has been a certain sense of numbness in the legs and forearms. Pains appeared later, of two kinds: first, aching pains in the calves, which were hard and tender; second, sharp pains in spots in fingers, legs, and feet; not, however, repeated pains in spots, with cutaneous hyperalgesia (not fulgurating pains). Knees were weak, and toes seemed cramped. Had sensation of band around toes Had no vesical paresis, loss of sexual power, or spinal pains; no abnormal reflexes in legs, no diplopia. In last three weeks distinct œdema of feet and legs; has noticed that the calves measure two or three centimetres more in the evening than in the morning. During the past fortnight there has been marked improvement in power of legs, and in the paræsthesiæ.

Examination.—No objective symptoms about eyes or face. Grasp: right side, 38 and 32 degrees; left, 31 and 22 degrees; decidedly weak for a man of patient's muscular development and size. Sensibility is not positively diminished in fingers, but there is some confusion in estimating number of points applied; distinguishes texture of cloths well. No analgesia. Fingers are skilful; handwriting unchanged.

Lower extremities: no patellar reflex; walks a little awkwardly, with slapping of the feet; but, strictly speaking, there is no ataxia. Staggers when standing with eyes closed and feet together, but with eyes open stands fairly well, even on one foot. Sensibility to æsthesiometer is dull, but he localizes impressions well; no analgesia. Those movements of toes which are controlled by interossei are limited. There is yet a trace of œdema over the tibiæ. No electrical examination.

I concurred in Dr. Rengifo's diagnosis of beriberi or multiple neuritis, and the same opinion was expressed by Professor Charcot, who saw Mr. G. shortly after. I recently learned that entire recovery took place in a few months. It may be of interest to add that Mr. G. presesented complete transposition of the viscera, his heart (the sounds of which were normal) being distinctly on the right of the sternum, and his liver on the left side; he was, however, right-handed originally.

Case III.—Señor J., aged fifty, a native and resident of Para, in Brazil, was referred to me by my friend, Dr. Charles E. Simmons, on November 11th, and is now under observation. Former health good; never had beri beri or severe malarial fever. Subject to "bilious attacks." In August of present year had bleeding hemorrhoids for three weeks, followed by weakness of legs. This was soon followed by tingling, numbness, and pains in the legs, and lastly by œdema, not affecting feet. By advice of physicians, Mr. J. sailed from Para, October 27th, but instead of immediately improving, he grew worse. Soon noticed numbness and awkwardness of hands; the weakness and œdema of legs increased. In the last six days the long extensors and the long flexors of

the right thumb have shown paresis, and in the last four days the same muscles on the left side have been affected. No dypsnœa, vertigo, or mental symptoms. No fever observed; urine high colored. The pains were never severe.

Examination.—Stout, well-built man; complexion pale, muddy, and tanned. No motor or sensory symptoms in eyes or face. Heart normal; no effusion in pleura. Upper extremities: all voluntary movements present except extension and flexion of phalanges of both thumbs; the two long extensors on both sides are completely paralyzed, and the long flexors partially so. The thumbs hang as do fingers in certain cases of lead paralysis. The left extensor indicis is weak. The abductor pollicis longus, and the small hand muscles are normal on both sides. Opposition well done. Supinators strong. No ataxia. Grasp: right and left, each 25 degrees on dynamometer. Sensibility is normal to æsthesiometer on finger-tips; but, by pricking, a limited area of analgesia (incomplete) is found over the left metacarpus, in the ulnar territory. Temperature well perceived. Lower extremities: the walk is somewhat feeble, but not pathological in type; can stand upon his toes, and equilibrium with eyes open or closed is nearly perfect. No ataxia. Patellar reflex subnormal on both sides. Both legs present a soft œdema in their inferior half; the calves are large but flabby. No swelling distal of ankle-joints. All voluntary movements of legs, feet, and toes can be performed; though extension and flexion of toes are done feebly. The great toes are not as much affected as are the thumbs. Sensibility is slightly dull to touch (a numb feeling) as high as the umbilicus; but the only zone of actual analgesia is on outer (fibular) side of left leg in its lower third. Temperature well perceived. Urine is dense, deposits urates; without albumen; a few small hyaline casts. Summary of electrical examination: Arms, no faradic or galvanic nerve reaction in extensor primi et secundi internodii pollicis on either side. These muscles do not respond to faradism, while galvanism yields a slow contraction, with marked tendency to tetanus: CaCC=AnCC or CaCC<AnCC. In flexor longus pollicis (both sides) there is no nerve reaction, and only a faint oscillatory C, with a strong faradic current applied directly to muscle. Galvanism gives a slow contraction: CaCC=AnCC, and the latter tending to tetanus. The long extensors of fingers on both sides yield reduced faradic contractility, and rather sluggish galvanic contraction, through CaCC>AnCC. Legs: Quantitative reduction to faradism and galvanism in calves: CaCC =AnCC. Extensor longus pollicis and extensor longus digit. have almost no faradic contractility, and to galvanism yield slow C, with CaCC=AnCC, the latter almost tetanic. Through external popliteal nerve better contractions (both by faradism and galvanism) are obtained in these muscles. Tibialis anticus and small muscles of feet, normal reactions. In other words, we have in this case a well-marked DeR, limited to the nervo-muscular apparatus of both thumbs; partial DeR in long extensors of fingers, and in extensors (and flexors) of toes.

Second Category: Analogous Indigenous Cases.

Case I.—Mrs. X., aged forty years, seen in consultation with Dr. Carreau, of New York, in November, 1885. There is a clear history of excessive drinking and sexual indulgence for many years. Patient is still drinking brandy steadily. For more than two years has suffered from gastric catarrh and failing memory. Early in past summer felt burning sensations in feet, pains in feet and legs; occasional numbness in feet and hands. At end of July marked increase in gastric symptoms, diffused swelling of hands and feet, with prickling, numbness, and a hyperalgesic state of same parts. Was unable to walk. No arthritis. Hands have also been weak. No bladder symptoms. Pains have ceased, but hands and feet are in state of painful formication; dreads to be touched. There is frequent vomiting of food and mucus. Partial dementia, with a few delusions. Urine examined several times; no sign of renal disease. *Examination:* Tongue tremulous and foul. No motor or sensory symptoms in eyes and face. The grasp is feeble, but long extensors and flexors all act. Opposition of thumb is impossible: marked atrophy of radial side of thenar eminences. Examination shows marked reduction in tactile sensibility in tips of all fingers. The hands are œdematous, with dorsum tense. No arthritis. Lower extremities examined seated: feet puffy and tense, but not red; no arthritis. All movements of feet and toes are possible, though feebly done. State of sensibility cannot be well studied, owing to patient's absurd fear of all instruments and manipulations. This also prevents any electrical tests. Patellar reflex abolished (?). Spine not tender. Diagnosis: alcoholic multiple neuritis. Treatment by reduction of brandy, injections of strychnia, galvanism, and message begun. Carlsbad sprudelsalz for gastric catarrh. A note received from Dr. Carreau, a few days ago, states that faradism did not produce contraction at first, and galvanism was used alone until March, when both currents were employed. In March began to walk, and has steadily improved. Now well, except feebleness of memory, and some numbness.

It is interesting to consider that this and other alcoholic cases bear a certain etiological relation to tropical beri-beri. In both cases we have subjects living upon a relative or actual excess of carbonaceous food, alcohol or rice, as predisposing, if not efficient causes of neuritis.

The two following cases were published in my essay on "Myelitis of the Anterior Horns" (1874 and 1877) as examples of that affection. Reading them in the light of recent advances in nerve pathology, they now appear to have been cases of multiple neuritis, with dropsical symptoms, making them strongly resemble beri-beri or kak-ke. I give them merely in epitome, referring to the original for details.

Case II. (Case XVIII. of essay).—Male, aged forty years, seen in January, 1874. In September severe "cold," with bronchitis, temporary suppression of urine, swelling of face and feet, lasting

three to four weeks. Some stiffness and subjective coldness in feet. Relieved by strychnia. October 16th, feet heavy and cold, hands awkward and fingers numb. Increasing loss of power in legs. Physician stated positively that neither this nor the former attack was due to Bright's disease. In November marked anæsthesia and nearly complete paralysis of both legs; thigh muscles remained active; no rectal or vesical symptoms. Median distribution in both hands, anæsthetic; the hands and forearms rapidly wasted. No bedsore or cincture feeling. No cerebral symptoms. Improvement from end of December, when movement appeared in toes.

When examined by me he presented an atrophic paralysis of both hands, with partial anæsthesia (mostly tactile) of finger-ends. Toes (except great toes), feet, and legs, can be pretty well moved in bed; legs much atrophied, especially in anterior tibial group of muscles. Feet are partly anæsthetic, but present (as do the legs) marked hyperalgesia. No faradic reaction can be had in both extensor pollicis, and only feeble contraction in thenar eminences. These muscles contract well, however, to galvanism (DeR). Complete recovery occurred by end of summer.

Case III. (Case XIX. of essay).—Male, aged forty-seven years, seen in March, 1884. Large, healthy man. Severe "cold" in October, 1883, with bronchitis, slowly followed by numbness and paresis of limbs. The numbness appeared at about the same time in the ends of the upper and lower extremities. November 10th, walking was possible only with the assistance of a stick or a person, but he could still dress himself. Swelling of the feet, with glossy skin, was marked; by November 14th, subjective coldness of feet. A few days later was unable to sit up in bed; much formication up to the knees, and halfway up the forearms; some anæsthesia (?) of the feet. No head or eye symptoms; bladder and rectum normal. In the middle of January, 1884, intense formication ushered in recovery; gradual improvement in power of legs and hands. Feet remained a little swollen. Some wasting of legs. In January noticed numbness in distribution of left superior maxillary nerve on face. Can now walk with help of cane and crutch.

Examination.—No facial symptoms. Movements of arms and hands good, except that extension of the right fingers is incomplete, and is very feeble on left side, especially for the thumb and index-finger. Palmar muscles emaciated, but not atrophied. Sensibility good. Grasp: right, 26 degrees; left, 16 degrees. Coordinates well. In lower extremities the only paralysis is below the knees. The left foot is but slightly movable; the right, a little more. Toes are somewhat contracted in flexion. Sensibility to contact is good down to ankle, dull below that, very dull in toes. Toes are numb. No œdema of feet or legs. Urine is dense, but free from any signs of renal disease. Electrical examination shows very great loss of faradic contractility in palsied muscles, almost complete in left extensor indicis, and in extensors of toes and flexors of feet (anterior tibial groups); feeble reaction in calves. All these muscles, however, react well to galvanism (DeR).

These three indigenous cases of multiple neuritis—one clearly of alcoholic origin, the others of unknown etiology—I submit with but little comment. They were characterized by a combination of paræsthesiæ and anæsthesia, by paralysis with atrophy and DeR, of irregular peripheral distribution, and by œdema of the extremities, without signs of renal disease. Bronchitis occurred a short time before the nervous symptoms appeared in the two non-alcoholic cases. Cardiac and respiratory symptoms, indicating neuritis of the vagi and the phrenic nerves, were the only ones wanting to produce a symptom-group almost exactly like that of severe beri-beri or kak-ke.

Consult B. Scheube, Die Japanische Kak-ke (beriberi), *Deutsches Archiv für klin. Medicin*, xxi. p. 141; xxii. p. 83 (1882–83).

SOME POINTS IN MINOR SURGERY AT THE PENNSYLVANIA HOSPITAL.

By THOMAS S. K. MORTON, M.D.,
SENIOR RESIDENT SURGEON.

Shock is combated usually by warmth and stimulants. The former is applied by means of hot baths or water bags, generally the latter. The patient is surrounded by rubber bags filled with hot water. These we have had made for the purpose. They are round, from one and a half to two and a half feet long, from four to six inches in diameter, and have a filling-hole with a screw cap at one end, and a handle at the other. Atropia is freely used. Whiskey, ether, digitalis, aromatic spirits of ammonia, or, in desperate cases, aqua ammonia itself, are given. The injection of pure ammonia is, of course, always followed by local sloughing. Mustard, hot fomentations, large enemas, and drinks of warm fluids do good service. Previously warmed blankets are a great comfort as well as of benefit.

Ether is our standard anæsthetic, although the A.-C.-E. mixture is often employed; chloroform very seldom. A small amount of the latter is found useful to relax the muscular spasm which often remains in drunkards, even when ether is fully pushed. A few drops will often permanently stop it, when the ether can be continued. A.-C.-E. has given rise to no alarming symptoms in at least two hundred administrations from my hands, and I know of no untoward circumstance attending its use here. All general anæsthetics are administered from small, square-folded, very absorbent towels. Cone or apparatus are not used. The "rapid" and rectal methods have long since been abandoned as dangerous. The patent ink-bottle stopper is found convenient to pour ether from the bottle.

During the local anæsthetic action of cocaine, we have performed many minor amputations, circumcisions, and other small operations; but with us, at least, the field of the drug in this direction is becoming quite limited. Most eye operations, however, are performed under its influence.

Divided or torn muscles, tendons, and nerves, if their ends can be seen, are sutured with catgut. If not visible, they are freely cut for, and likewise

sutured. Good function is the almost invariable result.

Subcutaneous operations, such as tenotomy, aspiration, and even exploration by needle, are performed with as much antiseptic precaution as if a large wound were made, for death has been known to occur from wound complication following each of these procedures. Therefore, knowing that there is *some* risk, no matter how trivial, it becomes one's duty to avoid it.

In the amputation of fingers and toes below the metacarpo- or tarso-phalangeal joints, rubber umbrella rings are used as tourniquets. The flaps are closely stitched, and, if there be any bleeding when the ring is taken off, a deep lateral stitch back of the line of incision on one or both sides will always effectually control it. We never put a ligature upon these arteries, finding the above method amply secure, and, so far as our last few hundred such amputations show, unattended with disadvantage.

In exarticulations at the metarcarpo or tarso-phalangeal joints ligatures are applied if possible, but if the bleeding is obstinate, a deep stitch into the palm or sole can be made to control the appropriate vessel. These operations receive the usual house dressing and a palmar splint. They are, as a rule, not dressed for from ten days to two weeks, when solid and complete union is expected and usually found.

Catgut sutures are passed through finger- and toe-nails, without fear, if by so doing crushed or cut parts can better be brought into shape, and also in operations for ingrowing nails.

We have saved many fingers, ears, and noses, which came in hanging by mere shreds of tissue, by promptly sewing them in place, and treating antiseptically. No opportunity has occurred by which to test the saving of those parts when entirely severed from the body.

Abrasions and brush burns are carefully cleansed and treated with either boracic acid ointment, or the standard house dressing.

The latter consists of: protective; Lister gauze, wrung out of 1 : 1000 $HgCl_2$ solution, and its skin surface thickly dusted with iodoform; a pad of dry 1 : 1000 cotton, and moist 1 : 1000 gauze bandages over all. We have found that Lister's boracic acid ointment makes up better if wax be substituted for the paraffine of his formula. Our receipt is: boracic acid and yellow wax, each 1 part, cosmoline 4 parts.

Ligatures are never applied except in the largest operative and accidental wounds.

Sutures run under or through the bleeding points effectually control them. No trouble is experienced in tying catgut sutures or ligatures, when the first tie of the knot is made as for a surgeon's knot. Catgut is invariably used for these purposes. In treating some hundreds of scalp wounds, no matter how extensive, I have never applied a ligature, always finding that carefully placed sutures will stop all hemorrhage.

Stitches are placed very close together in all wounds; this presupposes proper drainage if it is necessary. If so, it is secured by a few strands of finest catgut, placed along the bottom, and brought out at one end of the wound.

Small or superficial wounds as rarely require drainage as ligature. Scalp wounds are not drained unless extensive. If the edges are much contused or torn, they are excised. Quite small wounds of the scalp or elsewhere, and sometimes larger ones, are, after antiseptic closure, covered in with a minute pad of bichloride cotton, and plastered down with either pure collodion or combinations of it with such drugs as evaporated tincture of benzoine (evap. fl. ℥ij tr. benz. comp. to fl. ʒij, and make to fl. ℥ij with collodion), iodoform (10 per cent.), salicylic acid, etc. Wounds too small for stitches are similarly treated. Large wounds, of course, receive the house dressing and possibly drainage.

Very tense hematomata are freely incised, the clot or fluid blood curetted out, any bleeding vessel stitched or tied if it can easily be found, and the whole sewn up with or without a drain, according to size, and dressed with some compression.

Slowly resolving hematomata or those in which suppuration is present or incipient, are manipulated in exactly the same way.

Punctured wounds are laid open, curetted, washed with 1 : 1000 $HgCl_2$ solution, and closed as above. If the bottom cannot be reached, a small drain should be carried as deep as possible, and the best hoped for.

Gunshot wounds are treated in much the same manner. If it can readily be done, the ball is extracted through the wound or by counter-opening. The entrance and exit (if there be one) wounds are excised, the track of the ball curetted thoroughly, a small gut drain carried all the way through, and the external wounds treated as simple incised ones.

Compound fractures, if the skin wound is small, are freely cut into, washed with 1 : 1000, curetted, accurately stitched, and, if extensive, drained with catgut.

Some of them are dressed more frequently than the actual wounds require in order that good position of the bones may be secured.

Wounds of joints are treated in precisely the same manner, save that, unless they are dirty, we are satisfied with thorough washing with 1 : 1000, and omit the curette. Cure in one dressing is here attempted and good function expected.

Poisoned wounds are also treated somewhat similarily, but the utmost care is taken to get to the bottom of the wound itself and into all ramifications and sinuses with the curette and strong antiseptic solution (1 : 500). If the wound is very bad and cellulitis present or threatening, continuous antiseptic irrigation (1 : 2000) is started as soon as the cleaning out is effected.

Large glass percolating jars, with glass stop-cocks, or other regulating device, suspended over the part give best satisfaction. Whilst thus employing irrigation any wounds should be well covered with protective, the whole part covered with lint, and the solution allowed to drip upon it.

Suppurating wounds might be classed as poison wounds, for the treatment is almost the same,

namely: curette and antiseptic solution (1 : 1000 or 1 : 500), excision of wound edges and, usually, accurate approximation, with or without a drain as circumstances indicate.

Punctured, gunshot, suppurating, poison, and compound bone and joint wounds when thus dealt with, as a rule heal by primary intention and under but one dressing.

Felons, buboes, simple and suppurating cysts, inflamed bursæ, and large, small, and diffused eradicable abscesses are treated by exactly the same method and usually with like result.

Ineradicable abscesses, such as the psoas, are treated by this method as far as it can be made to go, and are then drained into an antiseptic dressing by means of a rubber drainage tube; through which they are from time to time washed out with antiseptic solution. Care must be taken in so doing, however, whether it be these or other cavities, not to let any of the solution remain in. It should be displaced by a weaker solution or distilled water.

In cutting into abscesses, old hematomata, etc., a better result is secured by opening them from one side through sound tissue.

Simple cellulitis is treated like the complicated form as described above.

Burns, if small in area, or confined to an extremity, are treated by the regular antiseptic dressing. All easily removed, dead skin, etc., is taken away; the parts washed with 1 : 1000 bichloride solution, or iodoform sprinkled on (in part for its analgesic effect), then protective in narrow strips, and the dressing and cotton. Anæsthesia may be required to do this properly.

Extensive burns are covered in with boracic acid or oxide of zinc ointment, the surface of which is sprinkled with iodoform and, if there is much pain, smeared thinly with oleate of morphia. This dressing is covered in with cotton batting and a bandage or binder.

Just here it may be well to speak of sloughs, granulations, and skin-grafting, but what is said applies to all wounds as well as burns.

Under the antiseptic dressing sloughs are very slowly thrown off. It is our custom to excise them as soon as they become demarked. If properly done this causes scarcely any pain or bleeding and places the wound days, and, perhaps, weeks nearer closure. By picking up the edge of the slough with a pair of forceps, and cutting with knife or scissors through its readily apparent junction with healthy tissue, it is easily accomplished. By this same process I have successfully, and without pain or hemorrhage, amputated even fingers and toes which we had attempted to save.

All forms of exuberant granulations are usually shaved off with a sharp knife. The moist bichloride dressing, applied without the intervention of protective, is found to produce ample stimulation, if such is indicated.

If skin grafting becomes necessary, a patch of thin skin is selected and made aseptic, as is also the granulating surface, if it is not so already. Almost microscopic pieces of the cleansed skin are then cut out by means of a purified needle and a pair of scissors, and planted among the granulations. Narrow strips of protective are applied, and upon this is placed either the "house-dressing," or simply a pad of dry 1 : 1000 cotton. Any bichloride solution remaining about the parts should be washed off with distilled water before the grafts are cut and set, and strong solutions should not be used while the islets of epithelium are forming.

Leg ulcers, when small, are stimulated, if necessary, by scoring with a sharp knife, nitrate of silver stick, etc.; dusted with iodoform; accurately fitted with a piece of protective, and a gauze dressing put on with a firm roller. If they are large, and have callous edges, these latter are trimmed off, the sore curetted, perhaps straps applied after the iodoform and protective, and then the same dressing. By this method they can always be kept perfectly sweet and clean; the discharge is but slight, and the pain still less. If the ulcers are very irritable, and will not bear the gauze dressing, boracic acid ointment is substituted for it.

Those painful, non-ulcerative conditions of the legs so often met with behave excellently under one or the other of the above dressings.

In such regions where it is impossible to apply or retain a regular dressing, great pains are taken in the cleansing before and after an operation, and iodoform in conjunction with frequent corrosive sublimate irrigations is freely used afterward. Especially are these applications valuable about the genito-urinary organs and rectum. In females, after most operations thereabouts, the vagina is washed with 1 : 1000, and then *filled* with iodoform. Beyond an occasional irrigation of the external parts, nothing more need be done until the stitches—if they have not been of catgut—are ready for removal.

Chancroids heal wonderfully if kept buried in iodoform; sometimes they are previously brushed over with acid nitrate of mercury, etc. No treatment is directed to hard chancres unless complicated.

Body parasites are destroyed with 1 : 500 corrosive sublimate solution. No unpleasant effects have been known to follow even the freest use of the solution in this way. If the ear has been invaded, it is syringed with that solution, and then filled with oleate of morphia and a little wad of cotton put on top.

A CASE OF BACKWARD DISLOCATION OF THE FOOT WITHOUT FRACTURE.

By WILLIAM G. DAGGETT, M.D.,
of New Haven, Conn.

Cases of backward dislocation of the foot occurring without fracture of the tibia or fibula are of such extreme rarity that the following brief report is offered with the view of placing on record one which came under my care a few days ago.

J. D., aged fourteen, while wrestling with a schoolmate, fell in such a manner that his foot became fixed, and the weight of his opponent, who fell on top of him, was spent on the leg above the ankle. The resulting injury was a backward dislocation of the astragalus, together with the rest of the foot.

The dislocation was easily reduced. Repeated careful examinations by Dr. Francis Bacon and myself disclosed no fracture of tibia or fibula. There was no unusual injury to the soft parts.

22 College St., New Haven, Conn.
November 6, 1886.

HOSPITAL NOTES.

The Treatment of Rheumatism in the Boston Hospitals.

Massachusetts General Hospital.

Dr. Francis Minot usually employs in the treatment of acute articular rheumatism, ten grains of salicylic acid or fifteen grains of sodium salicycate, for an adult, every hour, or every two hours, until the pain and fever abate; after that, at longer intervals according to circumstances. If there be indications of endo- or pericardial complications, sinapisms are applied, followed by fomentations, and quinine is given in two grain doses, three or four times daily. In cases of suspected cerebral inflammation ice is applied to the head, with opium, chloral hydrate, aconite, etc., internally. The affected joints are simply wrapped in cotton wadding. Purging is avoided.

The diet during the acute stage consists chiefly of milk and farinaceous articles. Wine and other stimulants are ordered according to the degree of prostration. The patients are kept in bed at least a week after all pain and swelling have subsided, and the temperature and pulse have fallen to the normal standards.

In the more chronic forms of articular rheumatism, reliance is chiefly placed on quinine and iron. In all cases care is taken during convalescence to prevent fatigue, exposure to cold, and errors in diet.

Dr. F. C. Shattuck uses a combination of the salicyl and alkaline treatment, with a view to—first, relief of the articular pain and swelling; and, second, the prevention of cardiac complications, the results of which are far more serious than are those of the inflammation about and in the joints. He finds that under the use of the salicyl compounds the joint pains and the fever yield more promptly and fully than under any other medication. Relapses, are, however common; and it would seem that, though the patient is made much more comfortable, his stay in the hospital is but little if at all shortened. There are good authorities who maintain that this treatment tends directly to lessen the liability to cardiac complications; there are other equally good and more numerous authorities who maintain that it has no such direct action. That the full alkaline treatment has some effect in averting and curing these complications, rests on evidence strong enough to make us listen to it; and the stay in hospital under its use is, if the statistics quoted by Professor Howard in Pepper's *System of Medicine* are reliable, rather shorter than under the salicyl compounds.

MEDICAL PROGRESS.

Spartein Sulphate as a Medicament.—The following statements are based upon results obtained in the clinic of Nothnagel. In cases of deficient heart activity, whether in valvular disease or emphysema, pleuritis and icterus, the drug was given in powder in doses of one milligramme, easily taken. Syphygmograms showed the effects produced.

(1) In very small doses the heart's contraction was strengthened, the pulse was fuller and stronger, the arterial tension increased, the frequency slightly diminished.

(2) These effects followed from three-quarters of an hour to an hour after administration, endured often longer than twenty-four hours, and were increased by repetition of the dose. An intermission of several days is useful, after which the drug acts more powerfully; it may be given daily for more than a week without injury.

(3) Impaired rhythm at first noticed is in a few cases only again observed; in seven heart lesions the ventricular action is much improved, but not made that of health.

(4) Respiration at first becomes more frequent, is then slightly less frequent.

(5) Diuresis, as would follow increased heart action, is increased.

(6) A mild narcotic effect of the drug is often noticed, generally resulting in rest and sleep.

(7) Symptoms of intoxication, giddiness, headache, heart palpitation, and nausea follow the use of small doses (1 to 4 milligrammes) very rarely, soon disappear, are slight in character, and are generally not observed on repeating the dose.

Spartein resembles digitalis. Its effect is, however, too sudden, and does not remain at its maximum sufficiently long to relieve severe disorders of compensation, while repeated doses of spartein do not result as efficiently as the use of digitalis. Its fixed dose and harmlessness will make it very useful; it seems more useful than caffeine, adonis vernalis, or convallaria.

It may be given in valvular lesions when compensation fails and the pulse lacks strength; also to regulate and strengthen a disordered heart action; also in insufficiency of the heart muscle without valvular lesion; also in pericarditis, as an aid in diuresis, and to supplement digitalis.—*Centralblatt für die gesammte Therapie*, October, 1886.

A Case of Acute Articular Rheumatism and Typhoid Fever occurring Simultaneously.—Drs. Spillman and Ganzinatty report a case in a man aged thirty-six, and generally healthy. In reviewing the case they analyze it as follows:

1. Occurring simultaneously with a pseudo-rheumatism of typhoid nature and infectious, and in which the rheumatic element bears a secondary relationship to the typhoid infection, there can develop an association of acute articular rheumatism and typhoid fever.

2. The two diseases develop at the same time, the rheumatism preceding the typhoid fever, or following and outlasting it.

3. The rheumatic manifestations remain simply fluctuating; joint suppuration does not occur as in secondary and infectious joint swellings.

4. The rheumatic manifestations which are but little affected by sodium salicylate, yield to antipyrine, whose analgesic effect is, however, brief and intermittent.

5. The typhoid fever manifests its ordinary symptoms; its duration is the usual one, its fever curve is modified

by the rheumatic exacerbations, and by the administration of antipyrine.—*Revue de Médecine*, Oct. 10, 1886.

A Peculiar Form of Motor Disturbance of the Pupil.—Salgó describes a peculiar form of pupil, which consists essentially of an irregular contraction of the muscular tissue of the iris, by which its pupillary margin assumes many different shapes. The pupil generally appears triangular or poliangular, with the corners thickened and rounded out, resembling somewhat the slit-like pupil of the cat, or the irregular appearance caused by synechia. This kind of pupil reacts in a normal manner, but after each movement assumes a somewhat different form, so that the contracted pupil appears different from the same when dilated.

The great majority of cases so far observed have been associated with general paralysis of the insane, though it has been seen in chronic, progressive psychoses in which no paralysis could be detected. The author considers that it is much the most frequent pupillary symptom in general paralysis, and regards it as an expression of the varying intensity of innervation from the cortex. —*Chicago Medical Journal and Examiner*, Dec. 1886.

Thallin.—In a work on the effects of this drug, Maragliano, of Genoa, says that

1. A single dose of one-tenth of a gramme results in a fall of temperature whose minimum is 0.7°, whose maximum is 2°.

2. A dose of one-fourth of a gramme will depress temperature 3.1°; one-half of a gramme brings temperature down 3.3°; three-fourths of a gramme causes 3.6°, and one gramme will depress temperature 4.7°.

3. The antipyretic effect begins commonly one hour after taking, and reaches its maximum after two hours, while the depression of temperature is only one degree for the first hour, and becomes greater after three or four hours.

4. The effect of a dose of one-tenth of a gramme persists from two to four hours; one-fourth of a gramme from two to nine hours; one-half of a gramme from two to ten hours.

5. The intensity of the effect varies with the same dose, and is effected by the following circumstances: *a*. The initial temperature; the higher this is, the greater the drug's action. *b*. The hour of the day, for which no rule can be given. *c*. Susceptibility of the patient.

6. Cumulative effects are produced by successive doses.

In comparing thallin and antipyrin, we find one-fourth of a gramme of thallin acting as powerfully as one gramme of antipyrin, with no appreciable difference in the continuance of the effect; to depress temperature for a given time, two or three times as much antipyrin as thallin must be given. Thallin is, therefore, bulk for bulk, the most powerful of antipyretics; it may be given in powder by the mouth, or hypodermatically, and results well in enemeta.—*Medicinisch Chirurgisches Centralblatt*, November 5, 1886.

The Causation and Cure of Uric Acid Calculi. —Pfeiffer has made a series of experiments as to the effect of different mineral waters in dissolving uric acid. He differs from other experimenters in imitating the natural condition of things, by placing the calculi in the urine altered by drinking the various mineral waters. The urine of healthy people, using no minerals, had no uric acid solving property, but, on the contrary, rendered the uric acid masses heavier. Acting on this hint, he successfully produced calculi outside the body. The Kochbrunnen water (Wiesbaden), he found, had very slight dissolving properties; the Carlsbad was a far stronger solvent, but with this disadvantage, that after leaving off taking it the calculi increased with great rapidity. Lithium water, twenty times as strong as the strongest natural water, had very slight solvent powers. In powder, lithium had more effect, but the quantity required daily was far beyond that which could be taken of any natural lithium water, and the effect ceased as soon as the remedy was left off. But with the pure alkali waters of Fachingen the effect was quite different, the urine in this case acquiring very well-marked solvent properties, and these persisting for a considerable time after, without the use of the waters. Pfeiffer, therefore, recommends, for uric acid stones in kidney and bladder, the continued use of the Fachingen waters, for months or years, at the rate of one or two bottles per week. Lehmann (Oeynhausen) has remarked that the waters of Wildungen were also useful in dissolving calculi. Ziemssen (Wiesbaden) states that Wildungen owed its renown mainly to the successful lithotripsy of its surgeons.—*Manchester Medical Chronicle*, November, 1886.

A Successful Hysterectomy.—A most extraordinary injury, done by violence to the genital apparatus of a woman, is described in the *Centralblatt für Gynäkologie* of November 13th. A woman was brought one morning to the hospital in Hamburg by the police, who had found her lying in the street insensible, her clothing covered with mud and stained with blood. An examination showed a fleshy tumor protruding from the vulva, which proved to be the uterus torn loose from all its attachments except at the anterior vaginal vault; there was also a tear involving the whole recto-vaginal septum and opening above into the peritoneal cavity. The total extirpation of the uterus was completed in the hospital, and, strange to say, the woman made a perfect recovery. The recto-vaginal tear was then repaired by a plastic operation which was also successful. The subsequent judicial investigation elicited the fact that the woman had been drinking heavily, till after midnight, with two male companions, who, following her on her way home, had cohabited with her, not without her consent; she herself being intoxicated could not tell clearly what had taken place, but it was apparent, from the nature of the injury, that one of these men, in a drunken frenzy, had introduced his whole hand into the rectum and, rupturing its anterior wall, had endeavored to drag out the uterus entire. The woman had remained lying in the street, in midwinter, until the following morning, and when found showed evidence of having lost a large quantity of blood. Her recovery, under the circumstances, was remarkable, and, taken in connection with the rarity of the injury, if indeed it is not unique, makes the report of the case very interesting.

The Means of Preventing the Deterioration of Rubber Apparatus.—An inquiry has been carried out under the direction of the French Minister of War with the object of ascertaining the cause and the remedy for

the peculiar changes which articles made of India-rubber undergo when kept in stock, the annual loss to the government from the deterioration of this class of goods being very considerable. Experience shows that India-rubber, after a time, loses the very qualities which make it useful, for it becomes dry and brittle. Articles kept in boxes, such as Higginson's syringes, Esmarch's bandages and drainage tubes, are particularly liable to deteriorate, as are also the insufflation bulbs so largely used in connection with spray-producing apparatus and thermo-cauteries. Unfortunately, the results of a long and patient investigation are not by any means satisfactory, so far as the discovery of a means of prevention is concerned. Nevertheless, certain precautions are advised, both in the quality and storage of India-rubber goods, which, it is hoped, will do something to minimize the loss. The commissioners advise, for instance, that Esmarch's bandages should be taken out of the boxes at least once a month, unrolled, and manipulated. Drainage tubes should be hung up in a cool place, or soaked in a non-putrescible fluid. Finally, all objects made of rubber should be kept in a cool, damp place, at a constant temperature, and sheltered from light, heat, and frost. Seeing that, in many cases, these conditions cannot be complied with, it is recommended that the bandages should be made of pure leaf rubber, in lieu of the elastic tissue usually employed. The purer the rubber the less readily does it undergo these structural alterations, and the lighter it weighs: its weight is, therefore, a sure guide to its quality. In consequence of these inquiries, the minister has ordered that in future all rubber articles are to be made with pure rubber of the best quality, preferably with the leaf rubber. The quality of the articles will be gauged by their specific gravity in order to insure the purity of the material employed.

Muscular Rheumatism due to the Use of Tobacco.—Dr. Edward Anderson, of Rockville, Md., writes as follows to the *Maryland Medical Journal*, November 27, 1886:

I have met with a great many cases of muscular rheumatism due to the use of tobacco in some form, mostly in the shape of snuff placed under the tongue. All remedies were unavailing whilst the use of the weed was indulged in. Every practitioner, I think, on meeting with a case of the above disorder should inquire as to the tobacco habit, and correct it, if possible.

Intermittent Albuminuria in a Child.—Dr. Mareau observed the above-mentioned phenomenon in a healthy chi'd aged ten, whose father, a chemist, made most careful and patient analyses. The child had had croup, whooping-cough, bronchitis, typhoid fever, and measles, all very mildly, and had recovered to good health. It was before the last illness, and during its continuance, that albuminuria appeared. There was no history of scarlatina. The child, although physically and mentally impressionable, gave no evidence of Bright's disease except a slight malaise, and headache occasionally. 447 analyses were made before the patient contracted measles, and the result of these observations was—

1. The existence of an albuminuria of unknown nature, bu t compatible with health.

2. This albuminuria was intermittent, transitory, and rarely resulted in the loss of much albumen; it was greatest after a meal.

3. The slight albuminuria of early morning is doubtless caused by the meal of the night preceding. Measles neither increased nor diminished the albuminuria.

4. When the child was prevented by fever from eating, its greatest albuminuria was on waking; when enjoying full meals, it had albumen after meals.

5. Excepting the presence of albumen, chemical and microscopic examination revealed no abnormality.

6. Milk diet, absolutely and patiently enforced, lessened a considerable amount of albumen, but had no effect upon mere traces.—*Revue de Médecine*, October, 1886.

Vallez's Ointment for Hemorrhoids:

Unguent. simpl.	16 parts.
Extract of elder	4 "
Burnt alum	2 "

Used by inunction every two hours.—*Revue de Thérapeutique*, November 15, 1886.

Treatment of Blenorrhagic Cystitis.—Desnos has arrived at the following conclusions after trying different modes of treatment:

1. Blenorrhagic cystitis attacks the neck of the bladder; it is always connected with an inflammation of the deep portion of the urethra, but such urethritis alone cannot give rise to all the symptoms of cystitis.

2. The frequent micturition which occurs in the beginning of blenorrhœa is of too short duration to be mistaken for a positive symptom of cystitis, especially in the absence of other symptoms.

3. In chronic cases the differential diagnosis between blenorrhagic and tuberculous cystitis is generally impossible when the former follows an old blenorrhœa.

4. A number of cases known as cystalgia, or neuralgia of the neck of the bladder, are simply partly cured cases of blenorrhagic cystitis; a painful sensation commonly persists in such cases.

5. The treatment of acute cystitis by emollients is generally fruitless; the injection of solution of nitrate of silver (one in fifty to one in ten) produces a sharp reaction at first but rapid improvement follows.

6. In chronic cases irrigation of the bladder is of little benefit and can excite fresh inflammation; general treatment is useful, but local treatment applied to the neck of the bladder is indispensable.

7. Bichloride of mercury solution, one in two hundred and fifty to one in five hundred, gives sharp and prolonged pain, and its beneficial effects are less prompt than those of nitrate of silver.

8. Iodoform in oil, or in suspension in glycerine is not painful; its effects, although good, are slow and uncertain.

9. Hydrochlorate of cocaine relieves pain in the bladder for a very short time; applied to the neck of the bladder just before the introduction of a caustic, it lessens greatly the painful effects of cauterization.

10. Nitrate of silver, in solutions of one fiftieth to one tenth, in injections of from ten drops to twenty-five or thirty, the author considers the most efficient, safe, and rapid means of treatment.—*Bulletin Général de Thérapeutique*, November 15, 1886.

THE MEDICAL NEWS.

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SATURDAY, DECEMBER 18, 1886.

THE TREATMENT OF RHEUMATIC FEVER.

IN this and in the past two numbers of THE MEDICAL NEWS we have presented our readers with brief reports on the methods employed in the treatment of rheumatism in the chief hospitals of Philadelphia, New York, and Boston.

For a knowledge of the natural history of rheumatic fever uninfluenced by drugs we are indebted to the late Dr. Flint, who treated thirteen patients in Bellevue Hospital with infusion of quassia, and to Dr. Sutton, of London, who treated a large number of cases with mint water. The observations of the latter physician, in conjunction with Sir William Gull, deserve a more thoughtful consideration than has been afforded them by many clinicians, as they are of primary importance in enabling us to judge of the effect of medicines on the disease.

Since the introduction of salicylic acid in 1875, this remedy and its compounds have been universally employed in rheumatism, and about sufficient time has now elapsed to permit us to arrive at a safe judgment of its uses. On looking over the reports, we find that in some form or other it is still employed in every one of the hospitals represented, and we ask for no better guarantee of its merit than this one fact. As a rule, a decade plays sad havoc with a drug announced with the *éclat* which attended the introduction of salicylic acid, but the experience of many physicians the world over seems to have accorded it a safe place in the therapeutics of rheumatism. The early anticipations, however, that we had in it a specific have not been realized, and too rapid cures have been expected. The elaborate analysis by Palmer Howard in Pepper's *System of Medicine*, vol. ii., seems to indicate very surely that cases treated by this method do not get better any quicker than on the old alkaline plan; indeed, if statistics are worth anything, they show that the cases do not get well so soon. Cardiac complications are probably more frequent, though in the reports we have published Dr. Loomis alone suggests that the effects of the acid favor their occurrence. It is a very general opinion, also, that under the salicylate treatment relapses are more frequent. Unquestionably the most striking action of the drug is in the relief of the pain and the reduction of the temperature, so that the extreme suffering and the general misery of the patient are promptly relieved. Upon these manifestations of the disease it often acts "like a charm," and possibly relapses are in many cases brought on by careless exposure or errors in diet in patients whose acute symptoms have been rapidly removed while the *materies morbi*—whatever that may be—still remains in the system. A combination of the salicylates and alkalies has probably a more decided effect upon the disease than either remedy alone. Dr. Kinnicutt, as shown by the report from St. Luke's Hospital, New York, continues to have good results from the use of oil of wintergreen, which seems to act almost as promptly as salicylic acid, of which it is a methyl ether.

That rheumatic fever is essentially a self limited disease, and is not materially influenced in its *duration* by drugs, is an opinion fully justified by a comparison of the reports of Sutton with those of the various writers who have published the results of the alkaline and salicylate plans of treatment. We have been too ready to mistake the relief of symptoms for the cure of the disease.

The reports do not refer very fully to the use of antipyrin in this disease, which is spoken of by recent German writers as a specific. It would seem, like the salicylates, to reduce the fever and to relieve the pain, and so far it may be specific, but we require further evidence to show that it really limits the course of the malady. Fränkel, in *Deutsche medicinische Wochenschrift*, Nos. 43 and 44, speaks very highly of its value in thirty-four cases, but acknowledges that in certain cases it cannot replace the salicylates.

INJECTION OF ETHER AND IODOFORM INTO COLD ABSCESSES.

THE use of iodoform has been of such marked advantage in the treatment of wounds that it is not surprising to find its employment extended to the treatment of lesions beneath the surface, such as cold abscesses. Of the vehicles which have been used, glycerine has certain disadvantages, on account of its density and the difficulty of bringing it into intimate contact with the whole

of the abscess wall. Ether has the great advantage of being an admirable solvent, and so fluid that it can penetrate where glycerine cannot. Besides this, it is believed that its vaporization by the heat of the body causes a further penetration and serves to convey the iodoform into the deepest recesses and most intricate sinuses.

The injection of iodoform dissolved in ether into cold abscesses was first brought prominently to the notice of surgeons by Verneuil, at the Congress of French Surgeons in 1885, and since then it has been used to a considerable extent, in France especially. Recently Verchère, in the *Révue de Chirurgie*, has called attention again to its advantages, and given an account of its use in twenty-three cases, including abscesses connected with disease of the bones of the thorax, pelvis, and spinal column, of the humerus, of the femur, of the elbow, and of the carpal bones, and abscesses in the neck, and in the temporal fossa. In all of these cases, except one, the treatment was followed by prompt improvement, and by more or less complete recovery. In one case death followed from causes unconnected with the treatment, and this furnished an opportunity to demonstrate how thoroughly the iodoform had been deposited upon the entire wall of the abscess.

It appears from the report of Verchère that this method is of special value in the treatment of tubercular abscesses. The iodoform seems to have a specific action upon tubercular deposits, and may act constitutionally as well as locally, since there is abundant evidence that it is absorbed when injected into an abscess, and its internal administration appears to be beneficial in general tuberculosis.

The method of Verneuil consists in evacuating the whole or a part of the contents of an abscess by means of an aspirator—or of a hypodermatic syringe, if the abscess be very small—and in injecting through the same tube a suitable quantity of iodoform-ether. Two dangers accompany these injections: 1. That of too great distention from the expansion of the vaporized ether. 2. That of iodoform poisoning. Verchère saw a case in which the distention of an abscess in the front of the neck was so great that symptoms of suffocation, from compression of the trachea, appeared, and another in which the whole of the scalp was raised from the bone. In both of these cases prompt relief was afforded by introducing needles of hypodermatic syringes, which permitted the escape of the ether vapor. The danger of iodoform poisoning is to be avoided by using only moderate quantities of iodoform. Verchère considers a drachm to be the maximum quantity which can be used with safety. In large abscesses about one and a half fluid-ounces of a five per cent. solution may be injected; in small abscesses a ten per cent. solution, or even a saturated solution may be used. In the case of very small abscesses with thick contents, Verchère employs the following ingenious method. He introduces the needle of a hypodermatic syringe into one part of the abscess and leaves it in place, while at another point he evacuates the abscess through an aspirator and closes the aperture with collodion and gauze; when this is done, he injects the ether through the hypodermatic needle.

It is important, where it is possible, to prevent the escape of the ether vapor after the injection, and this is accomplished by closing the opening with collodion and gauze, as stated above. As the iodoform remains a long time in an abscess cavity before it is wholly absorbed, the injections should be repeated, if necessary, only after a considerable interval; Verchère advises once a month in cases of large abscesses in which the skin does not give way, until a cure is effected. This may require six or more months. When the skin does give way after the injection, the sac is eliminated as a sort of slough, and the cure is more rapid. The observation of this fact leads Verchère to suggest opening the sac as part of the treatment.

One of the greatest merits of this method consists in the fact that the patients do not have to go to bed, and can continue their usual occupations.

The results obtained by Verneuil and by Verchère are so brilliant that their example may well be followed in the treatment of tuberculous or glandular abscesses. It may be that a still better medicament may be discovered for injection into abscess cavities. Carbolic acid and corrosive sublimate have been used, but they are far from safe, and they are certainly no more efficient than iodoform. Iodine may be used in abscesses of moderate size, and, if diluted, in large abscesses. In the former, pure tincture of iodine is an admirable agent, and nothing could surpass the results obtainable by its injection into small cysts and broken-down gummata, or into the sloughing tissue of felons and palmar abscesses. The action of iodoform is probably due to the gradual release of iodine, and it may be that the use of iodine itself would secure a more prompt action of the remedy. How much of the success of Verneuil's method depends upon the action of the ether it would be hard to say. As ether, it must act upon the tissues, and the great distention which follows its vaporization reminds one of the method of hyperdistention suggested, and very successfully employed for a time, by the late Mr. Callender.

It should be stated that Mickulicz was the first to call attention, in 1881, to the good effects of iodoform in tuberculous abscess, he having employed it in connection with glycerine. In 1884 Fränkel reported twenty cases from Billroth's clinic, of which all save two were complete cures, and fifteen of

which were dependent upon diseased bone. We regret to say that neither Verneuil nor Verchère makes the slightest allusion to the experiences of those surgeons to whom the credit of using iodoform in cold abscesses is justly due.

INTRAUTERINE DISINFECTION.

Although the whole medical world has reason to thank Koch for the announcement of his discovery, in 1881, that a solution of bichloride of mercury, of the strength of 1 : 1000, was absolutely fatal to the hardiest forms of microbes and their spores, and while this antiseptic agent has given brilliant evidence of its efficiency in obstetrics, it has not, unfortunately, shown itself to be the ideal disinfectant, fatal to the infecting parasites, but innocuous to their host. It is now clearly proven that the danger of fatal poisoning after the use upon absorbent surfaces of a solution of the strength already mentioned is by no means slight.

Having employed it extensively, and seeing no bad consequences, Carl Braun, of Vienna, recommends that a solution of thymol, also 1 : 1000, be substituted for corrosive sublimate in intrauterine injections, not only directly after delivery, when the danger of absorption and poisoning is, of course, greatest, but also later in the puerperium in those cases in which there is decomposition of retained fragments of the placenta, or membranes. In such cases the uterine walls are scraped with a curette, the thymol solution is injected, and a bougie of iodoform is inserted into the cervical canal, this plan of treatment giving the most excellent results.

THE EQUINE ORIGIN OF TETANUS.

It is somewhat remarkable that so able a man as Verneuil has recently accepted one dubious theory—that of Pasteur in regard to hydrophobia—and has proposed another—that of the so-called equine origin of tetanus. This latter was first announced in the *Gazette Hebdomadaire de Médecine*, in 1886, and Verneuil has repeated it before the Congress of French Surgeons. The principal grounds upon which it rests are the assertions that: 1. Tetanus often occurs in men who have been in contact with horses. 2. Tetanus is most frequently caused by injuries received from horses. 3. Horsedealers, stablemen, and grooms are more liable than other men to tetanus. And 4. Wounds which have come in contact with earth contaminated with the excreta of horses are more frequently followed by tetanus than any others.

Verneuil's theory received the approval of a number of the French surgeons present at the Congress, and was not seriously opposed by any of them. This approval accords well with the reception which Pasteur's theory of hydrophobia received at the Paris Academy of Medicine, and, like that, indicates that patriotism rather than reason may sometimes rule in French councils. Of the theory of Pasteur we have already expressed an unfavorable opinion which is gaining more and more adherents as time passes. Of Verneuil's theory we are compelled to express an equally unfavorable opinion. It is proper to give a reason for this, although it would suffice to say simply that Verneuil and his supporters have not adduced evidence sufficient to establish their views. We may go further, and say that the evidence they do adduce is not to be accepted at all. In the first place, it is not true that tetanus results most frequently from injuries received from horses, or in persons who are in habitual contact with horses. The injuries which may be followed by tetanus are of the most various kinds, and no one of them can be selected as fixing the nature of the malady. The style of reasoning adopted by Verneuil might in this country be applied to the toy-pistol, which about the Fourth of July creates such ravages among the children of certain cities of the United States. But to do this would be to repeat Verneuil's error of generalizing from too scanty premises. One of Verneuil's supporters, Dr. Blanc, of Bombay, illustrates the dangers of this method of reasoning by stretching it so as to cover cholera as well as tetanus, and spoils his argument by attempting to prove too much.

We cannot help comparing the loose theorizing of Verneuil with the carefully worked-out opinions of Rosenbach, presented to the Fifteenth Congress of German Surgeons, to which we have referred in The Medical News, of August 7, 1886. These opinions were supported by reports of experiments which might be used to show that tetanus can be produced almost at will without the intervention of any equine influence whatever. We do not regard Rosenbach's theory as to the origin of tetanus as fully demonstrated, nor did he so regard it; but it is certainly far more probable than Verneuil's theory, and it is supported by a much better argument.

We call attention to this subject, because we have not yet seen any warning against the hasty acceptance of the theory of the equine origin of tetanus. We cannot say what the future may show, and it may not be amiss to take this theory into consideration, and to investigate its claims; but, as it now stands, it appears to us to be an example of very faulty reasoning, and to require very different confirmation from that which seems to have satisfied the Congress of French Surgeons.

That the endemic paraplegia, or Beri-beri, of Japan and of certain tropical countries has not yet

been described in this country, lends special interest to the communication of Dr. Seguin on this subject at the meeting of the Neurological Society of Philadelphia. The researches of Scheube and others in Japan have shown that the disease is a multiple neuritis, probably of infectious origin. Dr. Seguin's cases came from Cuba, Brazil, and the Isthmus, in which regions it would appear to be of pretty recent occurrence. It is quite possible that the disease may appear in the Gulf States or in California, as it prevails extensively among the Chinese in the Sandwich Islands. The analogous indigenous cases reported by Dr. Seguin certainly resemble beri-beri in essential features, though it is doubtful if they are etiologically of the same nature.

The Library of the College of Physicians contains 34,234 volumes, exclusive of duplicates, and 16,026 unbound pamphlets, an increase during the year of 2452 volumes and 2239 pamphlets; 325 current periodicals devoted to medicine and the collateral sciences are regularly received, of which 173 are published within the United States. With the single exception of the library of the Surgeon-General's Office, at Washington, the library of the College constitutes the largest and most valuable collection of medical books in the United States.

The principal medical libraries of the country are the following:

	Volumes.	Pamphlets.
Library of Surgeon-General's Office	76,700	106,600
Library of College of Physicians of Philadelphia	34,234	16,026
Library of New York Academy of Medicine	20,000	12,000
Boston Medical Library	16,374	13,364
Library of the New York Hospital	15,860	
" Pennsylvania Hospital	15,000	

At the annual meeting of the Board of Managers of the Utica State Lunatic Asylum, held last Tuesday, Dr. G. Adler Blumer was unanimously elected Superintendent, to fill the vacancy created by the death of Dr. John P. Gray.

Dr. Blumer is a native of Sunderland, England, and about thirty-seven years of age. He came to the United States when quite young, but returned to Europe to study in Great Britain, Germany, and France. He graduated in medicine at the University of Pennsylvania, in 1879. He was appointed fourth assistant physician in the Utica Asylum in June, 1880, and promoted to second assistant two years later, and became first assistant in 1884. He performed very acceptably the duties of Superintendent during the illness of Dr. Gray.

Diphtheria is now prevalent in St. Paul, Minnesota, and at the request of the Board of Health of that city the Common Council has passed an ordinance requiring all physicians to report to the Department of Health all cases of membranous croup in the same way that they now report diphtheria, scarlet fever, and other contagious diseases. The Board inclines to a belief in the identity of so-called membranous croup with diphtheritic croup.

SOCIETY PROCEEDINGS.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, November 22, 1886.

The Vice-President, Charles K. Mills, M.D., in the Chair.

Dr. E. C. Seguin, of New York, read by invitation

NOTES ON THREE CASES OF TROPICAL BERI-BERI, AND ON SOME SIMILAR AMERICAN CASES.

(See page 679.)

Dr. Charles K. Mills then made some remarks on

THE CONCURRENCE OF MULTIPLE NEURITIS WITH MYELITIS OR ENCEPHALITIS.

As one result of the interest which has been aroused in the subject of multiple neuritis, or polyneuritis, some cures have been effected which were before not considered possible; but it seemed to the speaker that, as in the case of other advances in medicine, some have been led to go too far in their conclusions, and have overlooked facts which are worthy of close attention. That multiple neuritis frequently occurs, can no longer be doubted; but that it occurs frequently as an absolutely isolated affection is, to say the least, doubful. His own experience was, that not infrequently either myelitis or encephalitis, or both, concur with this affection; that is, in not a few cases in which the diagnosis of multiple neuritis could be made by the strict rules applicable to the study of this affection—by a certain combination of motor and sensory symptoms, by their localization in distal parts of the limbs, and by tenderness of the nerve trunks, and of the muscles—positive evidences of the existence of the central disorders were also present.

If, as is generally believed, multiple neuritis is the result of a direct toxic influence on the nerve elements themselves, it was reasonable to suppose that this same influence would frequently be exercised upon the nerve elements of the brain and spinal cord.

Gowers, in his *Manual of Diseases of the Nervous System*, says, with reference to the cases of multiple neuritis which have been pathologically examined:

"The *spinal cord* has been found healthy in most cases. The ganglion cells, in some instances, have presented abnormal appearances, a vitreous appearance, or vacuolation, and this when the anterior nerve roots were not diseased. Now and then more considerable changes, usually those of chronic myelitis, have been found in the cord. They are probably merely coincident. Morbid appearances in other organs are common in the cases of alcoholic origin. The brain will present signs of chronic meningitis. The liver is frequently, and the kidneys are occasionally, found diseased."

Dr. Mills's conclusions were that we may have four classes of cases: 1. Cases of multiple neuritis, pure and

simple; such cases, however, were rare. 2. Cases in which the multiple neuritis was associated with myelitis. 3. Cases in which multiple neuritis was associated with encephalitis. 4. Cases in which multiple neuritis was associated with both myelitis and encephalitis. Instead of the association being just as is indicated by this classification, the combination might be of neuritis or perineuritis, with meningo-myelitis or meningo-encephalitis; or, finally, any modification of these combinations might be found.

Dr. Mills referred to a case which he had seen in consultation recently, in which the patient presented all the typical marks of multiple neuritis, the condition of her limbs being such as to call to mind the picture in Gowers's recent book of a case of multiple alcoholic neuritis, with palsy of extensors of wrist and flexors of ankle. This patient had also very positive evidences of cerebral involvement—mental confusion, with hallucinations and delusions both of sight and hearing. She had a clear history of abuse, not only of alcohol, but also of opium, chloral, and other narcotics. He believed that in this case there was a concurrence of multiple neuritis, with a similar pathological condition in the spinal cord and brain. He also referred to other cases, seen in consultation, and more particularly in the Philadelphia Hospital, where the majority of patients have been the victims of alcoholic excess—cases in which a confused picture of nerve, cord, and cerebral disease, probably inflammatory, was frequently presented. Cases of poisoning by lead, mercury, and particularly arsenic, were also discussed. Particular reference was made to the series of cases of poisoning by arsenic which he reported to the College of Physicians of Philadelphia in 1883.

A most interesting case, as bearing upon the views here presented, was one which he saw with Dr. O'Hara, of Philadelphia, to whom he was indebted for notes of the past history of the case, and also for suggestions as to the condition present at different stages. This patient, a professional man of originally good physique, and of remarkable intellectual attainments, had, eight years ago, an attack of rheumatism, which left him with a crippled heart, the damage to this organ, however, not seeming to have been of its valvular, but rather of its nervous structures. The patient was in the habit of using tobacco and alcohol, but not to excess, and sometimes did not use these agents at all for long periods. Two years after the first attack of rheumatism he began to have trouble with his vision. Sight in both eyes slowly failed until he scarcely had more than perception of light in both eyes. Careful ophthalmoscopic examinations were made with negative results; the media were clear, and no signs of retinitis or neuritis were discovered. In eighteen months he entirely recovered his sight from travel, rest, and the use, in the latter months, of strychnia hypodermatically injected. About a year after recovery of his sight he had another attack, rheumatic or rheumatoid gouty in character. In this attack he had insomnia and evidences of general nervous irritability. At this time the left upper extremity suffered from an undoubted attack of neuritis, affecting the most of the brachial nerves, but more markedly those of the median distribution.

About six months ago, he had what appeared to be an apoplectiform attack, his left side—face, arm, and leg—being temporarily paralyzed, but without unconsciousness. The attack passed off in a few hours.

About two months since he was engaged in work which called for both mental and physical effort, and considerable exposure. One day, when at a height of more than one hundred feet, he was suddenly stricken with incomplete paralysis of motion and sensation in the lower extremities, accompanied by great pain, but succeeded by his own efforts in getting again to the ground. This attack he attributed, probably correctly, to a stroke of air. On examination, he was found to have almost complete paralysis of the left leg from the knee downward, with blueness and coldness of the foot, and typical anæsthesia dolorosa as high as the ankle. He complained of excruciating pains, which he described as "jamming" in the sole of the foot. The right leg showed a similar condition, but much less marked, the paralysis of motion and sensation extending only half way to the knee, and not being nearly as complete as upon the other side. In two weeks, under the use of anodynes, local and general, with massage and weak currents of electricity, he recovered completely from these symptoms in his limbs. He then began again to use both head and limbs without rhyme or reason, and was attacked with loss of power and great pain, and perverted sensation in the right leg below the knee, with swelling of the dorsum of the foot and of the ankles. He also began to have lightning pains, here and there, in both lower extremities, and radiating from the spine upward, these being sometimes accompanied by retraction of the head. Still later he developed symptoms of cerebral excitement—total insomnia, refusal to take medicine, quasi-delusions, great loquacity, etc. He was without sleep for nine days and nights. Various remedies were vainly tried, but the first genuine relief which he obtained was from hypodermatic injections of morphia, repeated every twelve hours. This was followed by the administration of deodorized tincture of opium regularly every four hours, in doses of from ten to twenty minims, with twenty minims at bedtime. This treatment was continued, with digitalis, which he had been taking more or less for six or seven years, for about nine days. Mild alcoholic stimulus was also used, and nourishment was systematically administered. He has improved to such an extent that all the symptoms, neural, spinal, and cerebral, have greatly diminished, so that he is able to travel, but he cannot yet endure any great strain, either physical or mental.

Dr. H. C. Wood stated his belief that chronic multiple neuritis is one of the most frequent of the severe organic nerve diseases, and that in a large proportion of cases of serious nerve disease, the whole spinal axis and its accessories are affected. In general paralysis of the insane, four-fifths of the cases have some lateral or posterior spinal sclerosis, and a large proportion of these cases, no doubt, have multiple neuritis. He thinks that it is perfectly proven that locomotor ataxia may travel down the cord and produce peripheral neuritis, and that it is equally well proven that peripheral neuritis may travel upward, producing secondary lesions in the cord. With reference to electrical studies, it may be said that a large number of cases show that in the various forms of neuritis, every possible change in the electrical reactions can be found. Post-mortem examinations are sufficiently numerous to show that peripheral

neuritis is frequently not associated with other diseases, and that it frequently causes symptoms which simulate other affections. When we have peripheral neuritis, it is difficult to make out a spinal trouble back of it.

Dr. Osler thought that it was clear that we have the curious disease beri-beri in this country. It is probable that it exists in the Gulf States, as, a few months ago, he received some slides, which had been sent by a physician of Texas, and were said to contain the micro-organism of beri-beri. Anyone reading the descriptions of this disease must have been struck with the remarkable resemblance of some of the cases to acute ascending paralysis. His friend, Dr. Vineberg, now of New York, who formerly practised in the Sandwich Islands, gives a very accurate account of the suddenness of onset, the rapidity of the ascension of the paralysis, which, in some cases, ultimately involves the respiratory muscles, producing death in that way. He agreed with Dr. Wood that multiple neuritis must be an exceedingly common disease. The French journals of the current year contain a surprising amount of literature on the subject. He had been particularly interested in cases of neuritis occurring in connection with certain of the fevers. After typhoid fever it has been described a number of times, and also after phthisis. During the past year, he has had one interesting case of paralysis of the extensors of the left foot in connection with phthisis, unquestionably a case of neuritis. He suggested that possibly some of these cases of paræsthesia of the hands, with feelings of numbness and tingling, which Putnam has described so accurately, may be of the nature of a peripheral neuritis. A case recently presented itself at his service at the Infirmary for Nervous Diseases, in which these symptoms were very marked, and in which there apparently were some trophic changes. The skin was glossy, and the hands were somewhat swollen, and, indeed, they presented in a slight degree the appearances seen in myxœdema.

In connection with the diagnosis between acute ascending paralysis, anterior myelitis, and multiple neuritis, he would refer to an article by Francotte in the *Revue de Médecine*, to which attention was called in The Medical News, of July 3, 1886. He reports four cases, two of which were studied anatomically, and in which the cord was found to be absolutely normal. In these two cases the clinical picture was that of Landry's ascending paralysis.

Dr. Seguin said that he was much interested in the remarks of Dr. Mills as to the possible coëxistence of a central with a peripheral lesion. He had no doubt that this coëxistence is frequently a source of considerable difficulty in making up our minds whether a case is one of irregular poliomyelitis or of peripheral neuritis. It also seemed to him to be a matter of great practical importance as regards treatment that we should make up our mind whether we have a case of perineuritis or one of parenchymatous neuritis. The former disease, which is, he thinks, the more common, and perhaps present in some cases of so-called neuralgia, is essentially an inflammatory change in the connective tissue, perhaps penetrating into the interior of the nerve bundles, but not affecting the nutrition of the axis-cylinder or myelin and not capable of producing any distinct paralysis or atrophy. The diagnosis may be made clear by relying on this distinctive point, that in interstitial neuritis there must be anæsthesia, even if limited in area; and a true paralysis and atrophy, even if restricted to a few muscles. In perineuritis the symptoms are more diffused, milder, more subjective, and do not present a specific appearance. He thought that the true key-note had been struck in insisting on the importance of a careful study of the neural and muscular reactions. In true neuritis and interstitial neuritis, there must be degenerative reactions in some shape, distal from the point of disease, while in perineuritis and in some forms of myelitis the reactions are either irregular or simply a quantitative or nodal reduction.

The diagnosis is of great importance with respect to treatment. Perineuritis and meningitic conditions he treats with great energy with counter-irritation, with the actual cautery and blisters. Internally, he employs mostly tonic treatment and does not resort to mercury or iodide of potassium unless there is a special reason for their use. Rest is also an important element in the treatment of perineuritic conditions. In essential neuritis therapeutic measures can have but little effect, as we know that a natural repair takes place irrespective of artificial conditions. If we favor nutrition by our general remedies that is the most that we can do, although galvanism may serve to keep up a better nutrition in muscles pending nerve regeneration.

In regard to the relation between neuritis and beri-beri, he did not wish to be understood as stating positively that we have beri-beri among us, but he thought that it would not be out of place to call attention to the analogy between the symptoms of the two affections. He thought it well to have the attention of physicians in our Gulf States called to the features of the disease. As the disease has recently appeared in northern Brazil, it may appear in our Southern States.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, November 8, 1886.

The President, Charles McBurney, M.D., in the Chair.

Dr. George A. Peters reported the following case of

INFLAMMATION OF THE SUBMUCOUS TISSUE OF THE GLANS AND PREPUCE.

Early in May, 1883, a gentleman, Mr. S., sixty-five years of age, presented himself with a condition of the penis to which Dr. Peters had never seen a parallel. For more than two years past he had complained of pain in that organ, and changes in structure had taken place which occasioned him much mental worry, and had made him decidedly hypochrondriacal.

On examination Dr. Peters found the glans and body of the penis, for about one inch from the end, hard and unyielding to the touch. The prepuce was very hard, inelastic, and embraced the glans so closely that it could not be drawn back sufficiently to expose it. The portion of the glans penis which could be exposed had the same hard feel, and was mottled with two or three small red, smooth spots, not ulcerated. Pain, although not severe, had been a constant symptom. There was also much itching and burning.

His general health had been considerably affected, but apparently more from mental agitation than from actual disease. The organ was not increased in size. There was no syphilitic or glandular taint. Fearing that if left unaided it might degenerate into epithelioma, he determined to amputate the penis, which was done May 9, 1883.

The operation was done about one-quarter of the distance behind the corona glandis with a circular sweep of the knife; the urethra was then dissected out, drawn forward, and stitched with fine suture to the skin, in order to prevent retraction. The wound healed very kindly, and he returned to his home in the country May 22d, thirteen days after the operation.

The specimen was handed to Dr. Frank Ferguson, pathologist, who reported that "the meatus is small, admitting only a No. 15 French sound, and the tissues around it are anæmic and of a peculiar transparent color. The urethra behind the meatus bears the normal relation to a penis of this size.

"The mucous membrane covering the glans and inner surface of the prepuce is normal. There is a zone of inflammatory products in the submucous tissue of the prepuce and glans throughout their entire extent, and although generally at a considerable distance from the surface (in the glans, along the periphery of the corpus cavernosum), in places there extend from the inflamatory zone limited areas which reach the mucous surface. This zone is composed of small round cells (young cells); in places accumulations of considerable size are seen, as in the formation of abscesses, but nowhere is seen any tendency to break-down.

"Some of the bloodvessels in the neighborhood of this zone of young cells are filled with similar small round cells, while the vessels which pass up through the diseased parts to the mucous membrane are empty. The vessels of the corpora cavernosa are generally distended with blood.

"*Diagnosis:* Inflammation of the submucous tissue of the glans penis and prepuce.

"*Note 1st.* The inflammation is extensive, its products found at the time of incision in the amputation.

"*2d.* There are no epithelial cells found in the glans or prepuce, beneath the mucous membrane, nor anything indicating carcinoma or sarcoma.

"*3d.* There has been general pressure on the vessels and nerves by the inflammatory products."

This case is unique in Dr. Peters's experience. Dr. Ferguson also states that it is the first of the kind which has been brought to his notice. The operation, Dr. Peters thinks, is justified by the fact that Mr. S. is now in good health, and there has been no extension of the disease. The relief to his mental condition would in itself sanction the operation.

Stated Meeting, November 22, 1886.

DR. STIMSON presented a case of

TUMOR OF BOTH SUPERIOR MAXILLÆ

in a girl thirteen years of age. The disease was first noticed three and a half years ago, as a small swelling in the front wall of the left antrum which increased slowly for two years, and then more rapidly during the last eighteen months. An operation for its removal was undertaken two years ago, but abandoned because the tumor appeared to be solid bone; the growth now involves the whole of the left side and all the right side, except the floor and margin of the orbit; the nose is deviated to the right, and the line of the incisor teeth is an inch and a half in advance of that of the lower jaw. The mouth is constantly held partially open because of the growth. This appears bony, hard to the touch, does not yield to pressure, and the concavity of the roof of the mouth has given place to a convexity, most marked on the left side; but few teeth are left in the upper jaw; there are some three superficial ulcers on the roof of the mouth, the mucous membrane in front is injected and deeper in color than usual. The tumor had been growing three years and a half. Dr. Stimson then invited a careful examination of the case, and an opinion as to the nature of the growth and the advisability of an operation.

DR. HUTCHISON said that the growth appeared to be a bony tumor, malignant in character; and it was questionable whether it could be removed completely without too great risk of death from hemorrhage; and if it was not wholly removed it would probably speedily return and prove fatal.

DR. SANDS rather thought that the tumor was a mixture of bone and other tissues, probably sarcomatous. He thought an operation would be hazardous, but the case without an operation would be fatal, and as the skin was not involved he should try to remove the growth.

DR. WYETH thought it was an osteo-sarcoma, but would risk an operation.

DR. BRIDDON was inclined to think it an enchondroma; he would not hesitate to recommend an operation as anything was better than her present condition.

DR. LANGE thought it might not be a very malignant tumor, but a mixed sarcoma; the case indicated an operation, and it was a very favorable one; the only danger being loss of blood, which might be great: but he thought that with proper precaution, including temporary ligature of the carotids, the removal of the jaw would not only be feasible but would give comparatively good results. He pointed out that the tumor did not seem to have as much tendency to grow inward to the base of the skull as it did to grow outward. He did not think there would be much difficulty in regard to the ethmoidal bones and posterior nares.

THE PRESIDENT thought it could be operated on with success; he advised a careful preliminary tracheotomy before the operation. He believed that, with a thorough plugging of the whole pharynx, pressure upon the carotids, without ligation, would be sufficient to control the hemorrhage.

DR. LANGE advised ligation of both carotids and securing the artery by pressing it over a rubber tube, which can easily be done by applying just so much pressure as entirely or partially to interrupt the current.

DR. SANDS recalled but one case in which the blood-current had been shut off in both common carotids simultaneously, and in that case fatal head symptoms supervened almost immediately. Whether they would occur in this case or not he could not say, but thought there would be a risk in performing such an operation; moreover, in his opinion, hemorrhage would not be controlled to any great extent by such a procedure.

He mentioned a case in which he had removed a portion of the lower jaw, and in which secondary hemorrhage took place from the internal carotid artery. A ligature was immediately applied to the common carotid, but there was no diminution of the bleeding, and it was only when a ligature was applied above the bleeding point that hemorrhage ceased. He would prefer, in Dr. Stimson's case, to trust to other means of avoiding undue loss of blood.

DR. WYETH did not think that the danger of immediate death from cerebral anæmia was so very great, there being a number of cases recorded in which the patient survived the deligation of both common carotid arteries, there being a varying interval between the application.

DR. LANGE thought that the ligation should be done cautiously, passing the ligature around the vessel without tying it; as it is drawn tighter gradually, the current can at any moment be diminished at will. This he considered a much safer method, and the risk of mischief is avoided which would probably occur in digital compression during such an operation.

DR. STIMSON thought it would dangerously prolong the operation to perform tracheotomy and tie both common carotids previous to the main operation.

DR. LANGE thought that the operation of tying the carotids would not occupy more than ten or fifteen minutes.

DR. STIMSON thought that it would require half an hour or more.

DR. LANGE suggested that it was not necessary to tie both simultaneously; only three days ago he was compelled to tie the common carotid for hemorrhage from the mouth and tongue. He asked the patient the moment he ligated the artery (this operation being done under cocaine), if he had any sensation of pain, vertigo, etc. He replied he had not. There was no noticeable disturbance of brain function.

DR. LANGE then presented a case of

NEPHROTOMY FOR PYONEPHROSIS,

with the following history:

Mrs. H., thirty-three years of age, married; had for years painful sensations in her lumbar region. Since about eight weeks ago she suffered from severe fluor albus, most likely of gonorrhœal origin, her husband being under treatment for gonorrhœa at that time, and now. For several weeks she had had cystitis, and within the last fourteen days, severe pain in the left lumbar region supervening. On the 11th of March he saw the patient in consultation with Dr. L. Straap. She was feverish, and suffered severe pain in her left lumbar region, where a tumor about the size of a new-born child's head could be felt, in all its relations corresponding to an enlarged kidney. Probatory puncture revealed the presence of pus. On the 13th of March, nephrotomy was done by lumbar incision, and the following condition found: There existed a large, pretty smooth cavity covered with a thin mucous membrane. At the bottom of this cavity a roundish, fleshy elevation could be felt and seen, apparently the main portion of the kidney. This was fluctuating, and on incision by the actual cautery, discharged a moderate quantity of pus. The finger, when introduced, felt the characteristic edges and cavities of the dilated calices. The larger cavity was apparently not in free communication with this main part of the pelvis. By its great extension it seemed to be crowded over and overlapping the organ entirely. At its depth, also, some protruding edges of calices could be felt. Both cavities were thoroughly drained, and a weak solution of boracic acic used as a wash during the after-treatment.

A great feature of the case was the even recovery which took place within eight weeks after the operation, when cicatrization was complete. The discharge of pus and urine through the wound decreased very rapidly, probably on account of the communication through the urethra being reëstablished. The urine, also, soon showed a much better condition, and was quite clear three months after the operation, containing only traces of albumen. The kidney could then be felt much reduced in size, though somewhat enlarged; the patient, now present, being in excellent health. He thought it probable that the woman may have had a hydronephrosis for a longer time, and that, in consequence of gonorrhœal infection, suppuration may have supervened.

DR. LANGE then reported the following case of

NEPHRECTOMY:

S. Frank, Russian, aged thirty-eight years; male; peddler by occupation, being seven years in the United States. He was first seen by him on October 2, 1886. He then had a cachectic appearance, and stated that in the summer of 1880 he had been taken with a severe dysentery, from which he suffered many months, and never fully regained health. For the last two years, steadily increasing discomfort, pain, and tenderness in the right hypochondrium, extending from the hepatic and renal regions downward toward the iliac fossa, has been felt, being more severe at night. Rigors and severe chills, followed by fever and perspiration, were of frequent occurrence; bowels irregular; urine rather abundant, was sometimes clear, and again would show a thick white sediment; a specimen examined the following day showed a large amount of pus and some cylindrical epithelia.

On examination, Dr. Lange found the man greatly reduced in flesh and strength, heart and lungs normal, abdomen slightly distended, walls resistant, so that palpation was difficult. In the right hypochondriac and lumbar region, on bimanual palpation, a tumor could be felt immediately below the liver, of about the size of two fists, the intestine being in front. There was no fluctuation, resistance being quite firm. Probatory puncture from the lumbar region gave a thick, odorless pus, at about the depth of two inches. Urine contained much pus; sp. g. 1.018, acid; containing slight amount of albumen. Microscopically, nothing but pus and a few flat epithelial cells, no cylindrical cells appear. The left lumbar region offered no abnormality.

Operation performed October 19th: nephrotomy, with eventual extirpation of the organ following. The pyonephrotic sac at its lower circumference was incised with a thermocautery, and a great quantity of thick pus escaped. On digital examination it was found that the whole swelling consisted of narrow pus cavities, mostly from a half to two inches in diameter; that it extended pretty high up below the diaphragm, and that for the economy of the body as a urine-secreting organ, it could

not possibly have any value. In view of the advanced degeneration, and the quality and quantity of the urine, the conclusion seemed justified that the opposite kidney must be comparatively healthy, while the pus must mainly be delivered from the right side. Though the adhesions of the capsule were quite extensive they were not very difficult to separate, and he succeeded, in spite of the size of the kidney, in bringing it before the lumbar incision without adding any cross incision, as he had to do in former cases. It was difficult to secure the pedicle, which was thick, short, and unyielding, and overlapped by the mass of the organ; finally, a preliminary elastic ligature was applied, the kidney being then cut away in front of the ligature; in this way a free access to the insertion of the ureter and other vessels was secured. A double ligature was then applied behind the previous one by means of Thierstro's spindles, the first ligature being then removed, and then by scissors and forceps the superfluous portions removed from the pedicle, and the actual cautery applied; and iodoform dusted over the wound. No sutures were applied, the wound being loosely packed with iodoform gauze.

Recovery took place without any serious disturbance, so that on November 14th, five weeks after the operation, he was discharged with a healthy granulating wound. The urine was loaded with pus during the first thirty-six hours, apparently this was pressed down into the bladder by manipulations during the operation, and on account of its thick consistency, was only gradually evacuated by the bladder. It then almost abruptly changed to a more normal condition in quality and other respects, and has remained almost normal. The most interesting feature in the after-treatment was the fact that the pedicle did not slough off, and the coarse silk ligatures did not come away spontaneously.

It is sometimes not easy in nephrotomy to find the exact boundary line between the tunica propria of the kidney and the hard fibroid layer, into which, after protracted inflammation and suppuration, the capsula adiposa is changed. He proposed to carry the incision with the thermocautery through all the layers deep into the tissues of the kidney, and on the edges of this incision to analyze exactly the above boundary line. He considered it very important not to carry the operative manipulations beyond this limit, as he had once met with a serious disappointment in neglecting this rule: the peritoneum was torn without his seeing it in time, and the patient died from septic peritonitis. Eventually the removal of a very old pyonephritic sac might be extremely difficult, and sometimes impossible, of which he had satisfied himself at the autopsy of a lady who had suffered from pyonephrotic calculous kidney for years, with perforation outward and into the colon; so that, finally, fecal matter was discharged through the lumbar region. Both kidneys were affected, and the patient finally died from tuberculosis of the lungs. In this case an absolutely fixed, enormously thickened, cicatricial sac, containing stones, was all that was left of the kidney; and its removal during the autopsy was attended with the greatest difficulty.

The specimen shows a thickened capsule, the tissues of the organ itself apparently entirely gone; the inner surface of the pus cavity is irregular, almost papillary; its form corresponding with that of the calices. Microscopical examination made by Dr. F. Heppenheimer showed that those trabecular prominences represented the remainder of kidney tissue in an advanced state of inflammatory and fatty degeneration, and that a thin epithelial layer covered their free surface, which seemed to justify the conclusion that the mucous membrane of the calices is not entirely gone.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, December 3, 1886.

The President, James C. Cameron, M.D., in the Chair.

Dr. Shepherd exhibited a

CASE OF LEPROSY.

occurring in a man aged nineteen, a native of Trinidad. He had a well-marked tubercular eruption on the face and hands, and a copious macular eruption on the legs and buttocks. The maculæ were of the size of ten cent pieces, of a bronzed color, and showed some infiltration. The fingers of both hands were crooked and swollen, and patient could not use them. The claw-like appearance of the hands was very marked. Large bullæ were seen on the hands and wrists, which when evacuated left troublesome ulcers. The patient's face was very characteristic of leprosy, the thickened tissues, dull expression, and tubercular nodules, also loss of eyebrows, and injected conjunctiva, gave the individual an appearance *sui generis*. There were also a number of anæsthetic patches, viz., on the inside of each thigh with atrophy of the skin on right elbow, and on dorsal surface of fingers and toes. The anæsthetic patches have only appeared within the last year. The right ulnar nerve could be easily felt and was slightly enlarged. The mucous membranes were not affected. The patient had been in this country four years and had been treated for syphilis; he came to Canada by the advice of physicians who thought his disease would improve in a colder climate. He was affected with the disease two years before he left Trinidad; the eruption was then principally on the chest, and disappeared with the use of chaulmoogra oil internally and externally. He said the disease is common in Trinidad, and exists chiefly among the Portugese. There was no history of leprosy in his family. Dr. Wyatt Johnston had excised one of the tubercles on the nose and had obtained from it the bacilli of leprosy in abundance, a beautiful preparation of which was shown.

In reply to a question of Dr. A. L. Smith's as to the contagiousness of leprosy, Dr. Shepherd said that there was great diversity of opinion both as to the contagiousness and the heredity of leprosy. This diversity of opinion was well shown in the reports from various leper stations throughout the world, lately published by the Government of the Sandwich Islands. Many think it hereditary in the second generation, others that children of leprous parents are predisposed to the disease. Although the general impression is that leprosy is hereditary, still there are no very strong proofs supporting this opinion. Dr. Shepherd thought that the disease was no doubt communicable by sexual intercourse, and could be inoculated like syphilis—but is not contagious in the common meaning of the term.

SUCCESSFUL OVARIOTOMY IN A PREGNANT PHTHISICAL WOMAN.

Dr. Wm. Gardner reported the case of a lady who was the mother of two children, the youngest being ten years of age, and who had suffered for many years from cough, hemoptysis, and purulent expectoration. An ovarian tumor was diagnosticated five years previously by her family physician. When seen in March last, by Dr. Gardner, she was two months pregnant, and he decided that the best course was to remove the ovarian tumor, as she suffered much from nausea, vomiting, and orthopnœa. The operation was performed in the middle of May. The patient made a rapid recovery, and her breathing became easier, and cough and expectoration lessened. Since then she had been safely delivered of a fine healthy child, weighing over ten pounds. Dr. Gardner remarked that operative measures were much preferable and safer than the old treatment of tapping the tumor or bringing on premature labor.

Dr. Shepherd related the following case of

SECONDARY SUTURE OF THE ULNAR NERVE, WITH RAPID RETURN OF SENSATION.

John D., æt. fifty, was cut with an axe over the left elbow, between the olecranon process and the internal condyle. The wound healed rapidly, but the patient afterward found that he could not use his arm and that there was considerable pain in the elbow. He entered the Montreal General Hospital under Dr. Shepherd, June 23, 1885, some ten weeks after the injury. At that time the left arm was semi-flexed and fixed; on attempting to straighten it great pain was complained of in the elbow. The muscles on the ulnar side of the forearm were wasted, and the little and ring fingers bent and useless. No sensation felt in parts affected by ulnar nerve. On examining the elbow a scar two inches long was seen stretching across the space between the olecranon and internal condyle; this cicatrix was excessively tender on pressure. The diagnosis of division of the ulnar nerve was made, and next day (June 24th) an operation was performed for the purpose of uniting the divided ends. An incision was made in the line of the ulnar nerve and across the scar, and the nerve was soon reached. The upper end was bulbous, and lower atrophied; both were embedded in scar tissue. The ends were separated by an interval of half an inch. After dissecting out the nerve the divided ends were "freshened" and brought together by a continuous suture of fine catgut, and the wound closed and dressed with dry antiseptic dressing. Next day the man had fairly good sensation in his little and ring finger, and a tingling feeling as if the nerve were asleep. The wound was first dressed on the sixth day and drainage tube removed; by July 8th the wound was firmly united and patient was sent home. Sensation, both general heat and tactile, was good, but motion was deficient. He was heard from in January, 1886, and at that time he had gone back to his work (lumbering), and said he was fast recovering the use of his arm, the only complaint he had was a slight burning pain over the little finger. Since then he has not been heard from.

Dr. Shepherd remarked that in these cases, in order to get a good result, the wound should unite by first intention, and the newly united nerve should not be subject to any tension. As long as the freshened ends were kept in accurate apposition it did not matter much what the material was; he also stated it was only necessary to pare off the ends of the nerves, it was not necessary to excise the nerve till healthy nerve tissue was reached. The interesting point in this case was the rapid return of sensation after suture. Surmay reports a somewhat similar case. Motion often takes some time before it returns, even after sensation has been fully established.

Dr. Roddick reported a case of

SUTURE OF THE SCIATIC NERVE

eighteen months after its division, The operation was followed by the gradual return of sensation and motion to the foot and rapid healing of two large and troublesome ulcers on the outer border of the foot. The operation was performed May, 1884. The age of patient was twenty-six. At present he could walk without a stick. The interesting feature in this case was the rapid healing of the ulcers after the union of the nerve, showing that the nerves of nutrition had first resumed their functions, although sensation and motion were still in abeyance.

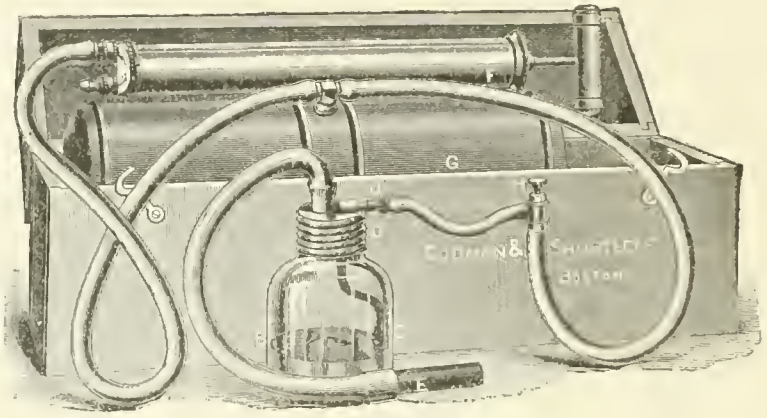
NEW INVENTIONS.

OLIVER'S ATOMIZER.

Depending upon the principle that a stream of water forced through a narrow tube against a firm resistance will become broken by the concussion into a coarser or finer spray, which remains for a short time suspended in the atmosphere, Auphan, at Euzet-les-Bains, in 1849, and, subsequently, Sales-Girons, Demarquay, Mathieu, Lewin, and others, constructed inhalation chambers, or portable apparatus for the inhalation of nebulized liquids. The apparatus of Bergson, constructed in 1862, after a suggestion of Nothanson, produces a spray by the impact of a current of air with a stream of liquid drawn by its suction power into a tube placed perpendicularly to the air-tube, the fineness of the spray being regulated by the size of the apertures in the tubes. The apparatus described twenty years ago by Dr. Henry K. Oliver, of Boston, combines these principles; the spray from a Bergson nebulizer being made to impinge upon the wall of the vessel containing the tubes and liquid, and thus becoming reduced into a state of still more minute subdivision. In the improved Oliver apparatus, the spray from the Bergson tubes first strikes upon an overhanging projection from the air-tube, and is thence deflected across the diameter and upon the wall of the glass container, being thus twice broken up, each time into finer particles; the nebula thus formed being conducted to the mouth of the patient by means of a rubber tube and mouthpiece of sufficient aperture. A separate mouthpiece should be used for each patient. The air for propulsion may be conveniently supplied by means of hand-bulbs, or, for office use, be drawn from a reservoir in connection with an air-pump; a very neat and complete apparatus, which will be found extremely satisfactory, is made at a very moderate price by Messrs. Codman & Shurtleff (see figure).

The very fine cloud produced by this instrument, remains suspended in the atmosphere for fully a minute, and, according to the observation of Dr. George A. Evans, the admixture of glycerine with the solution to be nebulized prolongs the period of suspension. This

persistent nebula can be drawn by the patient with the current of inspired air a much greater distance into the air-passages than is possible with the ordinary sprays from the simple Bergson or Richardson tubes, even though, in the latter case, the patient inhale merely the more distant particles lightly suspended in the atmosphere.



Oliver nebulizer, with reservoir and air-pump.

B, glass jar. C, Bergan tubes attached to D, metal cap. E, mouthpiece of hard rubber. F, pump. G, reservoir tested to 100 pounds. H, spring cut-off. J, metallic attachment of air-tube.

It is a fact, not generally appreciated, that when the ordinary spray-tube is placed within the mouth, the stream of spray strikes the hard palate, pharynx, or other structures, being there in part deposited as larger or smaller globules, and in part transformed into a nebula, as in Oliver's apparatus. A small portion of the nebula is inhaled, but most of it is lost by exhalation, forming the dense cloud which is seen to issue from the mouth. Oliver's apparatus, forming outside of the body the nebula which alone can pass the glottis, allows a much larger proportion of the fluid nebulized to reach the interior and deeper structures. It also avoids many of the objections which hold against the steam atomizer, such as the relaxing effect of the steam upon the mucous membranes. If it be considered advisable to warm the nebula, the vessel containing the medicament may be placed within another vessel containing hot water. By combining one of these instruments with an apparatus for the administration of inhalations of compressed air (Waldenburg's, or some of its modifications), the conditions are obtained which most highly favor the penetration of the vapor (into which, practically, the very fine spray becomes converted) into the ultimate air-cells.

Inhalation of nebulized liquids may be advantageously employed in most cases of inflammatory affections of the air-passages, whether acute or chronic, not only to modify local conditions, but, in certain cases, to secure constitutional effects by absorption of the drug through the respiratory mucous membrane. The drugs most generally useful are those which may be classed under the heads of astringents, sedatives, sorbefacients, antiseptics, and agents which promote secretion or liquefy its products. In acute laryngitis and laryngo-tracheitis, compound tincture of benzoin will be found highly useful, and may be combined with preparations, preferably of watery solutions, of opium, belladonna, stramonium, conium, cocaine, or other sedatives, if pain be a prominent symptom. In more sluggish inflammations of the upper air-tract, terebene,[1] eucalyptol, oil of pine, oil of fir, and other balsamics may be employed, properly diluted, with the addition, as recommended, of some light oil, as olive oil or oil of almonds. Creasote, properly diluted, and infusion of tar, are appropriate in the more chronic cases. Astringents, such as solutions of tannin, vegetable extracts containing tannin, solutions of alum, zinc sulphate or sulphocarbolate, zinc acetate, and the like, may be used in appropriate cases; the strength of the solution being regulated by the comparative recentness or chronicity of the case, stronger solutions being best borne in the more recent cases.

Solutions of ammonium chloride, sodium chloride, potassium chloride, ammonium iodide, sodium iodide, potassium iodide, tincture of iodine, ammonium carbonate, potassium carbonate, turpentine, terebene, tar, wine of ipecac, oleoresin of cubeb, and, perhaps, mineral or vegetable astringents, when expectoration is unduly profuse; cherry-laurel water, tincture of cimicifuga, sodium bromide, ammonium bromide, or the sedatives previously mentioned, when cough is unduly troublesome, are among the agents more or less useful, singly or in combination, in cases of bronchitis, acute, subacute, and chronic, the comparative freedom of expectoration, and the character of the material expectorated, being the principal guides in the selection. In fetid bronchitis, chronic broncho-pneumonitis, the collateral bronchitis of phthisis, and, perhaps, pulmonary gangrene, the same drugs may be used, with the addition of eucalyptol, creasote or carbolic acid, thymol, ethyl iodide, mercuric chloride, sodium borate, boric acid, salicylic acid, potassium permanganate, Labarraque's solution, solution of sulphurous acid or of hyposulphites, solution of hydrogen dioxide, and, in certain cases, with proper precautions as to dose and dilution, Fowler's solution. To restrain hæmoptysis, resort may be had to turpentine, ergot, hamamelis, gallic acid, tannic acid, sodium chloride, alum, tincture of chloride of iron, or Monsel's solution, according to indications.

[1] Among the agents mentioned in various connections are a number of volatile substances, which may also be employed without any apparatus, or with so simple a contrivance as a saucer or a piece of sponge for an evaporating surface.

In tonsillitis or pharyngitis, whether simple or diphtheritic, coarse sprays are more generally useful; and in croup, for obvious reasons, the steam atomizer is to be preferred.

In cases of syphilis, where the iodides are not well borne by the stomach, ethyl iodide, or solution of iodine, or of its salts, may be employed by inhalation with a view to the production of constitutional effects; and in all cases where it is desirable to minimize efforts of swallowing, and hypodermatic medication is to be avoided for any reason, the appropriate drug may be exhibited in this manner, with proper precautions. Opium, belladonna, and aconite are examples of agents readily absorbed by the respiratory mucous membrane. As a rule, the solutions should be of alkaline reaction. Instruments with metallic tubes or with hard rubber tubes, are furnished by the manufacturers. Notwithstanding the fact that in both cases the nozzles are of platinum, such saline solutions as will reduce metal (*e.g.*, ammonium chloride, mercuric chloride) should be used only with the rubber tubes; while benzoin and other agents that will dissolve rubber, must be used only with the metallic tubes, until such time as glass tubes, the preferable ones in all cases, are supplied by the manufacturers.

NEWS ITEMS.

PROFESSIONAL SECRECY.—We learn from the *Union Médicale* that a case was lately tried before a French court in which the secrecy imposed upon medical men by the law was pleaded by a physician as his justification for refusing to certify to the nature and duration of the last illness of a man who had insured his life in the sum of 10,000 francs. The life insurance company demanded the certificate as one of the conditions on which it would pay over the amount to the estate, and it appears that the heirs, for their part, united in absolving the physician from the obligation of secrecy. But the doctor held that it was not within the legal power of any representative or heir of the deceased to dissolve the obligation; that, he contended, was a function vested in the sick person up to the time of death, and one that could not pass into other hands after his death. He held also that he was not at liberty to use his own discretion in the matter, but was absolutely bound to secrecy. He laid the question before his professional brethren at Havre, the town in which the case was tried, and they sustained him. Furthermore, the court affirmed the validity of the position taken. It was laid down that, admitting that a patient might, in certain cases, relieve his medical adviser of the obligation of secrecy, that power was absolutely personal, and could not be transmitted to the heirs; also, that the physician must be the sole judge as to whether or not, in any given case, he had been consulted under the seal of secrecy.

CONSUMPTION OF TOBACCO IN EUROPE.—M. Paul Leroy-Beaulieu, in an interesting paper in the *Economiste Française*, gives the following figures showing the quantity of tobacco consumed in the different countries of Europe. The rate per 1000 inhabitants is, according to him, as follows: Spain, 110 pounds; Italy, 128 pounds; Great Britain, 138 pounds; Russia, 182 pounds; Hungary, 207 pounds; France, 210 pounds; Denmark, 224 pounds; Norway, 229 pounds; Austria, 273 pounds; Germany, 336 pounds; Holland, 448 pounds, and Belgium, 560 pounds. In other words, while in Spain little more than one pound per head is consumed, nearly double that quantity is consumed in France, three times as much in Germany, four times as much in Holland, and five times as much in Belgium.

COMPARATIVE PATHOLOGY.—At a recent meeting of the Biological Society, M. Raphael Blanchard showed a lizard which had a papilloma, probably of acarian origin, on its back.

RIGHTS AND LEFTS.—Dr. Louis Jobert has published a work on the cause and frequency of left-handedness. No purely left-handed race has ever been discovered, although there seems to be a difference in different tribes. Seventy per cent. of the inhabitants of the Pendjab use the left hand by preference, and the greater number of the Hottentots and Bushmen of South Africa also use the left hand in preference to the right. Dr. Marro, as a result of his study of criminals, has found that from fourteen to twenty-two per cent. of those who have been convicted of crime were left-handed, the highest ratio among people of all classes being only nine in the hundred.

THE CONTAGIOUSNESS OF LEPROSY has for a long time been a mooted question. The Royal College of Physicians, in order to obtain the best information on this subject, sent inquiries to physicians throughout the world, whose practice had brought them in contact with the disease, and whose opinions would, therefore, be of value. Thirteen of these have no doubt of its contagiousness, and thirty-four entertain no doubt of its non-contagiousness. Twelve regarded leprosy and syphilis as being intimately related; twenty-one believed there was no relation. Most of those to whom the inquiries were sent regard leprosy as hereditary, and also that it may originate spontaneously under suitable conditions.

THE ODOR OF BRANDY.—M. Ordonneau has lately made some investigations concerning the cause of the peculiar odor of brandy made from wine. That of brandy prepared from other materials such as maize, beets, and potatoes, is characterized by what is known to French experts as the "odeur de trois-six," which is not present in wine brandy. This odor has been traced by M. Ordonneau to the presence of isobutylic alcohol. In genuine cognac brandy, the predominating flavor is due to the presence of normal butylic alcohol, which is present to the extent of 218.60 grammes per hectolitre. The production of this alcohol appears to be due to the presence of *Saccharomyces ellipsoideus* in the grape juice, since it can be developed from the ordinary refinery liquid by fermenting it with the sediment of wine. The isobutylic alcohol, on the other hand, appears to be a secondary product of the fermentation with beer yeast. It might, therefore, be possible in future to obtain brandy of good flavor by fermenting malt liquor with the *Saccharomyces ellipsoideus*. The other flavoring product to which brandy owes its peculiar bouquet, appears to be a terpene boiling at 178° C., the products of the oxidation of which characterize old brandy. The author gives an analysis of cognac brandy, from which it ap-

pears that amylic and normal propylic alcohol and acetic ether form the principal ingredients, besides ethylic alcohol, although propionic, butyric, caproic and œnanthic ethers, and pyridin, are present in minute quantities.

ANCIENT IRISH MEDICAL JURISPRUDENCE. — The Brehon Code of Laws, the most ancient in Europe, dating from the fifth century, deals largely with medical affairs. They refer to surgeons who lived before the second century. They carefully provide for distress—that is, taxation—for the support of the son taken from his dead mother's breast, for the incurable, for the care of the sick as to food, bedding, nursing, and a house with the wind blowing in all quarters and with a stream close by. The medical man had power to keep from the house "fools and female scolds." The mode of distraint in case of a physician was, "Let his horsewhip and his probes be taken up. If he has not the proper number of such things, let a thread be tied about the finger next his little finger." The unqualified physician was to be fined if he operated without giving a guarantee against damages, or without giving notice that he was not qualified. The practitioner was to be quite exempt. An impartial physician was to be the judge of the mode of treatment and of the due recompense. The fees, always paid with oxen, the current coin, were most exactly proportioned to the rank of the patient. Cattle abounded, and as late as 1369 the value of a cow was only 3s. 4d.—DR. MAPOTHER, *in the Dublin Journal of Medical Science.*

SLEEPING IN THE WOODS.—In one of the German health-resorts, the *Allgemeine medicinische Central-Zeitung* states, the experiment was tried this summer of having the patients with pulmonary disorders sleep all night in the open air in the pine woods. The hammocks, used to rest in during the day, were provided with pillows and bed-clothing, and a party of five, two ladies and three gentlemen, spent their nights in the woods with no roof over their heads. The experiment was very successful, the patients slept better than they had been able to do in their rooms, and all declared themselves as feeling much more refreshed by their sleep than usual. It is proposed next summer to provide accommodation for a larger number of patients in the forest, so that the experiment may be tried on a large scale.

IODOFORM PREPARATIONS.—The dark color which iodoform salves and other solutions assume is said by Hebeler to depend on the presence of free iodine, and takes place the more quickly the more the preparations are exposed to the light. Solutions should, therefore, be kept in dark bottles, and ointments, especially those with a petroleum basis, be kept covered from the light.

CARLYLE ON THE MEDICAL PROFESSION.—In a letter written to Dr. Hutchinson Stirling in 1842, and but recently published, Carlyle said of the medical calling: "What profession is there equal in true nobleness to medicine? He that can abolish pain, relieve his fellow-mortal from sickness, he is indisputably usefullest of all men. Him savage and civilized will honor. He is in the right, be in the wrong who may. As a lord chancellor, under one's horse-hair wig, there might be misgivings; still more, perhaps, as a lord primate, under one's cauliflower; but if I could heal diseases I should say to all men and angels, without fear, 'En! ecce!'" Carlyle also gives some good advice on the subject of writing *versus* working. He counsels his correspondent, Dr. Stirling, then a young man, to "learn the indispensable significance of hard, stern, long-continued labor," and of silence. "Be in no haste to speak yourself," he says. "Why be *porous*—incontinent? Nothing can foment itself to clearness in a *colander*." Avoid literature, he continues, which, as a trade, is the "frightfullest, fatalest, and too generally despicablest of all trades now followed under the sun."

FATAL MISTAKE IN A POLICE LAZARET.—In a lazaret attached to a Moscow police-station an attendant recently administered by mistake a tablespoonful of a strong solution of carbolic acid to four patients, who at once complained of a burning sensation in the throat, and soon presented all the symptoms of carbolic acid poisoning. The surgeon managed to save all except one of the victims, who died next day.

PENNSYLVANIA HOSPITAL.—The second annual meeting of the Association of Ex-resident Physicians of the Pennsylvania Hospital was held in the library of the hospital, on Thursday evening, December 16, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 7 TO DECEMBER 13, 1886.

POPE, B. F., *Major and Surgeon.*—Relieved from duty in the office of the Surgeon-General of the Army, and will report in person to the President of the Army Medical Examining Board in New York City for duty as member and recorder of the Board. *S. O. 285, A. G. O.*, Dec. 9, 1886.

AINSWORTH, FRED. C., *Captain and Assistant Surgeon.*—Relieved from duty as Recorder of the Army Medical Examining Board, New York City, and ordered to report in person to the Surgeon-General of the Army for duty in his office.—*S. O. 282, A. G. O.*, Dec. 6, 1886.

TURRILL, H. S., *Captain and Assistant Surgeon.*—Ordered for duty as Post Surgeon at Fort Spokane, Washington Territory. —*S. O. 209, Department of Columbia*, Nov. 29, 1886.

BARROWS, CHARLES C., *First Lieutenant and Assistant Surgeon.*—Granted leave of absence for two months, to take effect when his services can be spared by his Post Commander.—*S. O. 285, A. G. O.*, Dec. 9, 1886.

WILSON, GEORGE F., *First Lieutenant and Assistant Surgeon.* —Granted leave of absence for one month, with permission to apply to headquarters, Department of the Missouri, for an extension of twenty days, to take effect about December 15.—*S. O. 125, Department of Dakota*, Dec. 1, 1886.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 11, 1886.

PERCY, H. P., *Passed Assistant Surgeon U. S. N.*—Ordered to Naval Academy at Annapolis, Md.

NORFLEET, ERNEST, *Passed Assistant Surgeon U. S. N.*—Granted three months' sick leave.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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ORIGINAL ARTICLES.

RECOVERY AFTER ABDOMINAL SECTION FOR PURULENT PERITONITIS.[1]

BY JOHN B. ROBERTS, M.D.,

PROFESSOR OF ANATOMY AND SURGERY IN THE PHILADELPHIA POLYCLINIC.

THE operative treatment of peritonitis is of sufficient importance to warrant the report of the following successful case:

A woman, aged forty-four years, came under my notice with the following history: About eight weeks ago she was seized with violent pain in the abdomen, which pain has been constant ever since, with occasional griping and colicky sensations. There has been no vomiting, but for three weeks past she has been restricted entirely to liquid food by her physician. There has been no chill. When first seen by me, she stated that some three weeks previously she had been seized with great pain in the abdomen during the night, and that about that time she had noticed in the left side of the belly a tumor. I could get from her no definite history of the tumor, or of any previous abdominal disease. Her health previous to the present illness had been good. At the time my attention was called to her by Dr. Arthur V. Meigs, she had a temperature of 102°, and a pulse of about 130. From the flushed face, the thighs flexed upon the pelvis, the considerable pain on palpation of the abdomen, and the adynamic condition, it was very evident that the woman was suffering from peritonitis, due in some way to this tumor.

Accurate examination was not practicable on account of the pain which it caused, and the woman was too weak to permit any extensive or elaborate means of diagnosis being instituted. The tumor was smooth in outline and apparently about the size of a fœtal head. A vaginal examination showed the uterus to be not much out of the normal position, although the fundus seemed to be tilted somewhat forward. My diagnosis, made in a provisional way, was a cyst of the left ovary, of perhaps several months' duration, which had ruptured, allowing the contents to escape into the abdominal cavity. It was possible, of course, that the peritonitis was due not to rupture of an ovarian cyst, but to some other form of tumor, or to disease of the Fallopian tubes.

Under the belief that removal of the tumor and cleansing the peritoneal cavity of the contents of the tumor which had been thrown into it would afford the best chance of recovery, I was induced to call a consultation as to the propriety of doing an abdominal section.

Accordingly, on the following day, with the consent of the other members of the surgical staff of the Pennsylvania Hospital who were present, I made an incision through the linea alba, extending almost from the umbilicus to the pubes, and at once came upon a smooth tumor containing fluid. Puncture of this with the trocar evacuated some five or six ounces of very offensive pus. The intestines and omentum were adherent to the surface of this sac, which was evidently the rounded mass felt through the abdominal wall. It was soon apparent that there had been a long-standing inflammation involving the structures contained within the abdominal cavity. It was impossible to enucleate this large sac or cyst because of the matting together of all the structures, and the large amount of new tissue which had formed as the result of the inflammatory process.

Although great care was taken, and a good deal of time consumed, I was unable, either by my hand or by means of a bougie introduced as an explorer, to determine the original site of the growth, or the reason for the beginning of the inflammation. There were a number of similar sacs or cysts containing pus, the walls of which were made up of adventitious tissue and the neighboring viscera. In fact, the whole contents of the left side of the pelvis were glued together by inflammatory adhesions and new tissue. As it was found impossible to remove all the new tissue or to tear up all the adhesions, I was contented with scraping out the most accessible portion of the sac wall, evacuating the pus from the numerous other cavities, and washing out the abdomen very thoroughly with a solution of bichloride of mercury containing one part of the salt to ten thousand parts of water. The abdominal wound, which was about five inches in length, was approximated by catgut sutures. Two rubber drainage tubes were inserted at the lower angle of the wound, and a dressing of iodoform and corrosive sublimate gauze applied.

The whole operation was done under the strictest antiseptic precautions, and the patient was then put to bed. For two days she received no food, liquid or solid, being allowed simply cracked ice, and an occasional small dose of morphia and brandy. Subsequently she was given small quantities of milk and such easily digested food. On and after the second day, a weak solution of corrosive sublimate of the same strength as that used at the time of the operation, namely, one to ten thousand, was used for washing out the abdominal cavity through the drainage tubes, but the upper portion of the wound dressing was not removed. The temperature gradually fell to normal, which point it had reached on the fourth day. At this time the upper portion of the dressing was removed for the first time, and a complete union of the upper part of the wound was found.

Three weeks after the operation, at her own

[1] Read before the Philadelphia Clinical Society, November 26, 1886.

request, she was discharged from the hospital, although she had not yet regained sufficient strength to be able to move about the room. In fact, we had kept her in bed up to that time, fearing that the exhaustion of getting up might be deleterious to her.

During the last week of her stay in the hospital, a portion of the incision reopened superficially. At the time of her discharge the opening into the abdominal cavity appeared closed, though there was still a small, superficial wound at the lower portion of the original incision.

This case of suppurative peritonitis due to an unknown cause, cured by operation, is a good illustration of the recent advances in abdominal surgery.

Although I did the operation under the impression that the origin of the trouble was an ovarian cyst, yet I should have been willing to do so had I known the exact condition of the disease, because in such a localized peritonitis as this, the symptoms present were almost certain to be followed by death. At least this is the reasonable conclusion when we consider the condition of the patient's temperature and pulse, and the fact that the peritonitis was so intense that her thighs were flexed upon her pelvis. I had, in fact, every reason to anticipate a speedy termination of the case.

Operations upon the abdomen have recently been performed for so many causes with such a high percentage of success, that it seems to me probable that many cases of peritonitis more or less resembling this one can be very successfully treated by abdominal incision and an evacuation of the purulent contents of the belly.

My experience in abdominal section and suture of the intestines, for stab wounds, and the experience of Bull, Hamilton, and others, in a similar treatment of gunshot injuries of the belly, together with my results in exploratory abdominal incisions, have convinced me that we are too ready to allow patients to die from intra-abdominal injuries. Rupture of the bladder, stab wounds of the intestines, gunshot wounds of the intestines, traumatic rupture of the intestines, perforating ulcers of the stomach, and even, perhaps, perforations due to typhoid fever should be treated in many cases by immediate opening of the belly and local surgical treatment.

This case is a contribution to the literature of the subject, to be added to the many cases similarly treated by gynecologists. General surgeons do not, I think, fully appreciate the advantages which are gained by imitating our gynecological brothers in the adoption of active surgical treatment for abdominal lesions.

A CASE OF CHRONIC DISCHARGE FROM THE MAMMA.

BY A. K. BOND, M.D.,
OF BALTIMORE.

ABSCESSES of the mamma, with consequent discharging sinuses, are familiar to every physician, and discharges of thin, sometimes bloody, fluid from the nipples are not infrequent in the course of mammary tumors. To the former class belongs the case which is the subject of the present article, differing from those commonly seen in several particulars which make it especially interesting.

The patient, a well-built colored woman, a washerwoman by trade, consulted me in the spring of 1883, in regard to a discharge from the right breast, giving, in answer to my questions, the following history. She was thirty-eight years of age, and as a girl had been strong and healthy. She was married in her eighteenth year, and bore four children in rapid succession, nursing them without any trouble, save a slight rawness of the nipples, which occurred at the beginning of each lactation, and was relieved quickly by the use of astringent lotions. One of her four children died of brain fever, and one is now consumptive. Since her twenty-fourth year she has not been pregnant.

About four years ago a goitre appeared on the right side of the neck, and increased to the size of a half orange, becoming especially large at the menstrual periods. This I succeeded in permanently reducing by hypodermatic injection of tincture of iodine.

One and a half years ago, without known cause, her right mamma increased in size, until it became as large as a nursing breast, and, upon the application of poultices, discharged a quantity of pus through the natural ducts of the nipple. After a time the flow of pus ceased, leaving a chronic discharge of colorless fluid, which had continued ever since, and of late had proved so troublesome that she applied to me for relief. The discharge was slight during the daytime, but at night, while she was in bed or asleep, it became so great as to drench her clothing even as far as the waist, thus disturbing her rest, and proving a drain upon her system.

I ordered the ointment of belladonna to be applied to the breast, and, for a few weeks, this lessened the discharge; but, on July 3, 1883, she returned, complaining that the flow had been on the foregoing night again very great.

Upon examination, the fluid expressed from the nipple—which was of a pale yellow color, slightly tinged with red, and of a neutral reaction to litmus—showed, under the microscope, pus cells and red blood-corpuscles scattered over the field. During the following night her menses appeared. On July 6th she reported a considerable flow of blood from the right nipple on the preceding night. Upon examination, I expressed from the nipple a quantity of fluid, which, standing in droplets, appeared blood red, but upon linen produced a pale yellow stain like that of thin pus.

The right mamma was at this time soft to the touch, and the parts about the nipple seemed somewhat infiltrated with clear fluid, but the breast did not otherwise differ in appearance from the left breast, which was normal for a non-pregnant woman. The openings through which the fluid passed out were on the upper side of the nipple, and pressure within an inch of the nipple caused an escape in jets, while pressure upon the surrounding part produced no result.

On July 13th I again examined the discharge, finding groups of granular cells like small colostrum

corpuscles, and but very few red blood-corpuscles in the field. Another examination, on July 19th, showed similar groups; red corpuscles here and there; a number of cells about the size of red corpuscles; but with edges digitate and not so deeply pigmented, some of them containing red granules, and a great number of active pus cells. On August 5th and September 5th, her menstrual periods, she had again bloody discharges from the nipple, and on December 6th, ten days after her menstrual flow, an abundant discharge of blood. The pale discharge remained uncured up to this time, although now and then lessened in quantity under the use of remedies.

As the patient was very much debilitated at the beginning of the treatment, I used, during the whole time she was under my care, general tonics, such as iron, arsenic, and cod-liver oil, with great benefit to her health. I also used internally for a time extract of belladonna and zinc oxide, but without any appreciable influence upon the mammary trouble.

The local treatment of the mamma was a subject of careful thought. Astringent lotions did no good. Belladonna ointment applied frequently to the breast was followed by considerable diminution in the flow, but after a few weeks ceased to have any influence upon it.

Strapping the breast with adhesive plaster, leaving the nipple free, lessened the discharge, and was of great comfort to the patient. Attacks of pain from irritation and over-distention, which occurred from time to time, were readily relieved by warm poultices over the breast.

In addition to the above methods, I devised still another which aided me greatly in the relief of the trouble. Wishing to reach directly the surface affected, and to apply the remedies immediately to it, and not feeling justified in laying it open by an incision, I thought of using the natural openings of the nipple for the purpose. Accordingly I had a hypodermatic needle filed blunt, and introducing this after the manner of a sound along one of the ducts from which the discharge escaped, found no difficulty in passing it in to the depth of an inch or more, and injecting, without injuring the parts, various solutions upon the mucus-secreting surfaces of the gland. Attaching the syringe, and holding the nipple firmly but gently against the needle, I threw in a small quantity—a half drachm or more—of fluid, until the parts were fully distended, and, after holding it in for a few seconds, permitted it again to escape. In this way I injected, at first water, then a solution of alum at intervals of a few days. After a fortnight, I exchanged this for liquor iodinii compositus diluted with water, continuing its use for several weeks, but without either checking the discharge or bringing about a healthy action of the secreting parts.

Again, on December 3d, three months after the failure of the iodine method, a degree of pain in the breast called for local anodynes, and I injected in the same way small quantities of morphia and atropia solution, or (when the pain was less) of a four grain solution of atropia, both of which injections seemed to diminish greatly the amount of the discharge.

Under these injections of atropia and of morphia, which were continued once or twice a week until the middle of February, 1884, the patient experienced great relief, the discharge ceasing altogether, although the secretion continued in a slight degree, the patient pressing out each morning a few drops of fluid from the nipple. An occasional attack of pain in the breast was readily relieved by the application of a poultice. My daily record ends April 11, 1884, two months after the latest injection, and up to this time there had been no recurrence of the discharge. The breast when last examined was soft to the touch, and showed no signs of induration. Pressure on the lacteal sinuses was painful, and caused the escape of a few drops of fluid.

A note added eight months later reports the patient in good health.

The peculiar points in the case above recorded are the occurrence of an abscess of the breast without known cause, in a woman who was neither pregnant nor nursing; the secretion of fluid in such large quantities, and the unusual manner of its discharge; the flow of blood from the nipple at the time at which the menstrual flow was taking place.

I cannot find any similar case noted in the books which I have at hand.

The direct method of application of drugs through sounding of the nipple ducts is worthy of recommendation in similar cases.

MARTIN'S OPERATION FOR PROLAPSUS UTERI, SLIGHTLY MODIFIED.

BY BARTON C. HIRST, M.D.,
PHYSICIAN TO THE MATERNITY HOSPITAL, PHILADELPHIA.

AT a time when an operation for prolapsus uteri so difficult of execution and often so unsatisfactory in its results as that proposed by Alexander, is seriously discussed, and when it is even suggested that abdominal section be performed in order to fasten the fundus of the uterus to the abdominal wall, a short account of an operation comparatively easy to do, absolutely safe, and which, its originator claims, has not yet failed to produce good results in his hands, may be of interest.

The operation described in the last edition of Martin's book *Pathologie und Therapie der Frauenkrankheiten*, was devised by him after a trial of the various methods proposed by Winkel, Neugebauer, Simon, Hegar, and Bischoff had convinced him that they were not to be relied upon to produce a permanent cure; it consists of a posterior and an anterior colporrhaphy and a circular amputation of the cervix. The posterior colporrhaphy resembles the operation proposed by Emmet for the cure of lacerations of the perineum; the denudation makes a figure that may be compared to a half-moon with two extensions from the plane surface, one on each side of the median line: these two extensions run up the posterior vaginal wall, one in each lateral sulcus, on both sides of the posterior column; when the stitches are introduced and the wounds are closed, the figure

is Y-shaped, the lateral arms being in the vagina on either side of the column, and the straight arm running through the perineum.

The anterior colporrhaphy is performed by excising an elliptical piece of mucous membrane from the anterior wall of the vagina, one pole of which should be at the junction of the external cervical with the vaginal mucous membrane, while the other should reach almost to the meatus urinarius; this should be the first step of the operation, and should be done while the uterus is in a condition of total prolapse. The mucous membrane should be dissected off in a single piece, the width of which at its widest part should about equal the width of the anterior wall of the vagina. The denuded surface will appear so extensive as to excite some apprehension that the wound cannot be closed, but this difficulty is obviated by the use of the continuous catgut "Etagennaht;" with a needle and a long catgut thread the central portions of the denuded surfaces are brought together, the needle passing with each stitch from the urethra toward the cervix; when the lowest point is reached, the same thread is carried up again toward the urethra, the relations of the parts being inverted by the prolapse, uniting still larger surfaces; and finally, if necessary, the same suture is again reversed, this time bringing together the edges of the mucous membrane that at first looked so far apart that their union seemed almost impossible. Thus the two sides of the denuded surface are brought into perfect apposition and without an excessive amount of tension.

Martin insists upon the amputation of the cervix as essential to the success of his operation, believing, as he does, that there is always present a hypertrophic elongation of the supravaginal portion of the cervix, but in this he is probably mistaken. Every one who is familiar with these cases must have noticed that after replacing a prolapsed uterus and confining the woman to bed for a few days, the measurement of the cavity will be little, if at all, above the normal, although before it may have been, perhaps, ten or fifteen centimetres. The so called hypertrophic elongation is therefore merely a temporary condition produced by mechanical causes, and by no means a true hypertrophy; if, then, the uterus can be retained in place the mutilation entailed by the amputation of the cervix is unnecessary.

I have lately had an opportunity of performing this operation, modified by the omission of the amputation of the cervix, with such a satisfactory result as to warrant me in calling the attention of those who have not had an opportunity of seeing Martin's book, to an operation which seems to promise the best results in a class of cases that have hitherto been only too apt to defy all treatment.

The case in which Martin's operation proved a success may be briefly described as follows: Mrs. C., aged fifty-seven, applied for treatment on September 10th, with the history that her womb had come down a year before; that since then she has had increasing difficulty in walking and in performing her housework, and that whenever she urinated she had first to lie down and replace her womb, but that even then urination was painful. An examination showed total prolapse of the uterus, a large cystocele, and extensive erosions of the cervix; the sound showed a length of ten centimetres. The womb was replaced, the woman confined to bed, and after the ordinary local treatment for five days the erosions were healed. The uterus measured seven centimetres. On September 15th, the operation was performed in exact accordance with the description already given, omitting, however, the amputation of the cervix. On the fourteenth day the stitches, shotted silkworm gut, were removed from the posterior vaginal wall and the perineum; the catgut sutures had been absorbed; the union was perfect. The highest temperature had been 99.5°, there had been no bleeding and no suppuration. To-day, November 4th, the uterus is in good position, the woman is actively engaged in her household duties, and considers herself cured.

MEDICAL PROGRESS.

Tyrotoxicon and Cholera Infantum.—At a recent meeting of the Michigan State Board of Health, Dr. Vaughan said:

Since my last report I have found tyrotoxicon in one sample of milk. As this case has a direct bearing on the probable relationship between tyrotoxicon and cholera infantum, I will report it somewhat in detail.

July 30, 1886, about one o'clock P.M., I was called to see the seven months' old babe of Mr. B. I found that the child had been vomiting quite constantly for some three hours. It had also passed watery stools some six or seven times. The eyes were sunken, skin cold and clammy, and pulse rapid and small. I diagnosticated cholera infantum. During the preceding night, the child had seemed as well as usual, and had taken nourishment freely from the mother's breast. Early in the morning it had been given a bottle of cow's milk, and soon thereafter the nausea and vomiting began. Later, as stated above, the child began to purge. The mother furnishing an insufficient supply of milk, it had been the habit to give the child cow's milk several times during the day. I prohibited the further use of milk, both that from the mother and from the bottle, and substituted meat preparations and rice water as foods. I also prescribed pepsin, bismuth subnitrate, chalk mixture, and camphorated tincture of opium.

The cow's milk which had been furnished the child was from an animal kept by one of the neighbors. On the evening of the same day that the child was taken sick, I obtained two quarts of the morning's milk of this animal. The milk had the appearance of very rich cream, being of a yellow tint throughout. This milk was allowed to stand through the night of the 30th in the ice-box of a refrigerator. On the morning of the 31st I began the analysis. After pouring the milk from the pitcher, there remained in that vessel about two ounces of a fluid the color of port wine. Microscopical examination of this fluid showed the presence of pus and blood corpuscles. The blood was also detected by obtaining the characteristic bands of oxyhemoglobine with the spectroscope. The milk, which had already coagulated, was filtered. The strongly acid filtrate was rendered feebly alkaline with potassium hydrate, and then agitated with absolute ether. After separation the

ether was removed with a pipette, and allowed to evaporate spontaneously. This residue was dissolved in distilled water and again agitated with ether. This ethereal solution left, after spontaneous evaporation, a residue which had a slightly brownish tint. I did not obtain the crystals of tyrotoxicon, doubtlessly owing to this trace of impurity; but the residue had the odor and taste of tyrotoxicon. This residue dissolved in some distilled water, and given to a cat, produced retching and vomiting.

That tyrotoxicon was present in the milk taken by the child shortly before the beginning of its illness, there could now be no doubt. It is true that the milk was abnormal in other respects also, inasmuch as it contained pus and blood.

After the withdrawal of all milk, and the use of the medicinal agents mentioned above, the child began to improve, and by the afternoon of August 1st it seemed so well that it was allowed a bottle of good cow's milk (from another animal); but soon after taking this milk it again began to vomit and purge. Milk was again withheld and the same medicinal treatment resorted to. This attack was slight, and after it the child continued to improve until the night of August 4th, when the grandmother, who "knew more about raising babies than the doctor," fed the child bountifully upon milk. Again the vomiting and purging began, and it was more than a week before all symptoms of gastro-intestinal irritation had disappeared. About the 15th of August milk was again allowed, at first in small quantity, and this seeming to have no harmful effect, more liberal quantities were given. The child has continued well since.

From the above observed facts, I infer that not only the poison but the ferment, by whose growth the poison is generated, was introduced to the alimentary canal, that this microörganism continued to live until some time after August 4th, and when the milk was given the poison was again formed by the growth of the ferment. Whether or not any germicide could have been borne by the child in sufficient quantity to destroy the ferment I do not know.

It now remains to ascertain with certainty the nature of the ferment concerned in the production of tyrotoxicon, and to determine by experiments upon milk inoculated with this germ the value of various germicides. Many physicians claim that the bichloride of mercury, in proper doses, is a very valuable agent in the treatment of cholera infantum.

Fortunately no other children were furnished with the milk of this cow which first supplied the B. baby. The attention of the owner of the cow was called to the nature of the milk, and its use by all was discontinued for some days. There was no sore visible upon the teats. Had this milk been mixed with that of a number of other animals, the color would have escaped detection, and all the milk might have been rendered poisonous.

Cocaine in Acute Pharyngitis.—Dr. Kurz mentions in the *Abeille Médicale* that, having a severe case of phlegmonous inflammation of the pharynx, producing dyspnœa, violent headache, and great pain in the neck, which was unrelieved by chlorate of potash, salicylic acid, quinine, and ice, he painted the pharynx with a four per cent. solution of cocaine. The first application caused a choking sensation and vomiting; it was repeated at the end of five minutes, and this time no reflex actions appeared. After two more applications the local symptoms disappeared as if by magic, the extreme tumefaction becoming scarcely perceptible, and the voice, respiration, and power of deglutition returning. The cure was ultimately completed by a two per cent. resorcine spray.

Volition and Coughing.—Thomas F. Rumbold, M.D., of St. Louis, Mo., writes as follows to the *Maryland Medical Journal* of December 4, 1886:

There is far more probability of an anodyne application relieving a little finger that is benumbed by a blow on the elbow, than that a cough will remove the sensation in the throat that is caused by an irritation due to inflammation or to a lodgement of a secretion behind the soft palate.

I have known patients cough, on an average, ten times every five minutes for two hours in the morning, making two hundred and forty spasmodic efforts to relieve the throat of tickling sensations. Now, this is tiresome to a weak individual and the relief of one-half of their efforts may be sufficient to prevent the throat becoming inflamed and thus prevent the lungs being implicated in the disease. If a healthy individual coughs two hundred and forty times in two hours every morning—not to take into account the very frequent coughing through the day that is done by every such patient—he will, in a few weeks, have his throat so highly inflamed that he may require medical aid for its relief.

A good method to help one to control the cough, is to mark each cough on a card, preserve this card, and endeavor to decrease the number of coughs each day. I have known patients to decrease these efforts seventy-five per cent. One patient coughed one thousand and eighty-five times on the first day's tallying, on the next day she coughed four hundred and fifty times, on the next, only two hundred and twenty times. This may seem to some to be trifling work, but the result is always beneficial to the cough and to the strength of the patient. Some patients have tried to control the cough without marking each effort down, but they are not certain as to the degree of decrease or increase of the cough; there is no doubt that a patient will be more certain of success in controlling his cough if he marks every effort on a piece of paper; under these circumstances the mental effort will greatly assist in resisting the sensation of tickling in the throat.

Hemichorea Symptomatic of Brain Diseases.—Dr. Bidon, in an extended essay, sums up the symptomatology, prognosis, and treatment of hemichorea as follows:

1. Cerebral diseases may be accompanied by hemichorea. Under the term hemichorea, we group all varieties of post-hemiplegic incoördination, excepting epileptiform tremors.

2. The nature of the lesion is unimportant, its location is of the greatest moment.

3. The lesion causing hemichorea must be at some point of the pyramidal tracts; there is not a distinct centre for each variety of incoördination.

4. Motor incoördination is due to disturbed equilibrium through muscular antagonism. Equilibrium is broken generally by contracture, and sometimes by paralysis.

5. The diagnosis, to be accurate, must inform us with what type of movement we have to do, and tell us the seat and nature of the lesion.

6. Intelligent gymnastics, the continuous electric current, and also the faradic, offer the best hopes in treatment.

7. The prognosis is not absolutely hopeless, but is not bright.—*Revue de Médecine*, October 10, 1886.

Aconitina.—According to Mandelin, the alkaloid obtained from *aconitum napellus* is benzoilaconine, or aconitine in crystallizable form, together with some amorphous alkaloid of less physiological activity. *Aconitum ferox*, on the contrary, contains pseudo-aconitine or veratroilaconine. The unequal activity of the roots of these two species is not the result of unequal richness in alkaloids, but of the different power of the alkaloids they respectively contain. Aconitine is one of the most energetic of poisons. For a frog, 1.2 to 2.4 milligrammes per kilo. is a lethal dose. In warm-blooded animals 0.05 to 0.75 milligramme per kilo. For a man, three milligrammes would be a fatal dose. German and French aconitine is benzoilaconine; English (especially Morson's) is veratroilaconine. The simplest method of testing the activity of the alkaloid is to inject a known quantity into a warm-blooded animal, as a rabbit or guinea-pig. Aconitine does not give color reactions; any which occur are due to impurity. The want of characteristic chemical reactions, the readiness with which it decomposes, and the minuteness of the lethal dose, render the detection of aconitine extremely difficult in toxicological cases.—*Manchester Medical Chronicle*, November, 1886.

Antagonism of Strychnia and Cocaine.—Bignon, after numerous experiments on dogs, finds that an animal which has been poisoned by strychnia, in doses not above two milligrammes to each kilogramme of body weight, can be saved from death by the hypodermatic use of cocaine, pushed to the point of delirium, and the effect maintained until elimination has occurred; this result may be obtained even after tetanic spasms have occurred.

In poisoning by three milligrammes of strychnia to each kilogramme of body weight, success may still be attained by pushing the cocaine above two centigrammes per kilogramme of weight, doses which exceed the toxic dose of cocaine.

The author observed complete recovery in animals so poisoned in about six hours.—*Bulletin Général de Thérapeutique*, October 30, 1886.

Experimental Researches concerning the Regeneration of the Tissues of the Liver.—In experimenting upon animals Podovssozki observed that wounds in the liver substance healed without manifest loss of substance or scar. The first appearance of regeneration occurred after a hyperæmic period of ten or twelve hours. In cats and rats the liver cells proper increased by nuclear segmentation; connective tissue cells and bloodvessel epithelium increased by the indirect growth of nuclei.

Especially interesting was the growth of the epithelium in the bile-ducts, which in some animals is directly reproduced, in others furnishes a starting-point for the liver parenchyma. The cells and ducts which develop from the gall-ducts grow either by direct extension of their elements or through an exuberant growth in an intermediate stage of liver tissue proper, reproducing the embryonal development of the liver.—*Centralblatt für die medicinischen Wissenschaften*, Nov. 13, 1886.

Acetophenon.—Schüder has experimented with this drug in fourteen cases, comprising heart and lung affections of varying severity, in doses varying from two to five drops given in capsules. Its effect was the promotion of a peaceful sleep in intervals of an hour or an hour and a half after taking.

No unpleasant after-effects were observed, and it was especially grateful to phthisical patients, whose cough was much lessened.—*Deutsche medicinische Wochenschrift*, November 11, 1886.

Ptyalin and Milk Ferment in Urine.—Holvotschiner has by experiment with solutions of starch found ptyalin in urine, which, under appropriate conditions, demonstrated its amylolytic power. The ferment was found to be most abundant four or six hours after eating and in the morning urine. With those suffering from gastric and intestinal catarrh it was most abundant in the afternoon.

The milk ferment was found most abundant in the urine passed four to six hours after a meal. In the urine of one or two hours after a meal the ferment is almost absent.—*Centralblatt für klinische Medicin*, October 9, 1886.

Treatment of Bronchitis in Scrofulous Subjects.—The following is Monin's formula:

Ol. morrhuæ	500 parts.
Iodal	1 "
Essence of eucalyptus . . .	8 "

Two spoonfuls daily.—*Revue de Thérapeutique*, November 15, 1886.

Treatment of Nephritic Colic.—Huchard recommends the following:

Sodii benzoat.,	
Lithii carbonat.,	
Ext. stigmat. maydis . . .	āā gr. xlv.
Ol. anisi	gtt. iij.
Divide in 60 pills.	

Sig.—Four pills daily.—*Les Nouveaux Remèdes*, November 24, 1886.

Treatment of Laryngo-pharyngitis.—The following are Coupard's formulæ:

By atomization five minutes night and morning:

Acid. carbolic.	gr. xv.
Potass. bromid.	℥jss.
Aquæ	Oj.

And as a gargle:

Acid. carbolic.,	
Zinc. chlorid.	āā gr. xv.
Syrup. morph. hydrochl. . .	℥iv.
Inf. cocæ fol.	℥viss.

—*Revue de Thérapeutique*, December 1, 1886.

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THE PREVENTION OF SYPHILIS.

THERE can be no doubt that syphilis is a less frequent and, in general, a less formidable disease than it used to be. The cases are fewer, and it is becoming rare to see those horrible illustrations of its possible ravages, which were very numerous so late as the first half of this century. Nevertheless, syphilis is one of the gravest disorders to which the human race is exposed, and there should be no relaxation of the efforts of medical men to find the best way in which to treat it, or the most successful means for its prevention.

This latter question has been recently discussed quite fully in the first Congress of Russian Physicians, in January, 1886, a report of which may be found in the *Monatshefte für praktische Dermatologie*, for October, 1886. As is usual in such discussions, much was said about the utility of police supervision of prostitutes, and we are not surprised to find that a great deal of evidence was brought forward which indicates that what is known as the legalization of prostitution, or anti-contagious diseases acts, is but a broken reed, not fit to lean upon. For example, SPERK, of St. Petersburg, said that 42 per cent. of the public women in that city are in the condylomatous stage of syphilis; and HERZENSTEIN thought thus to exclude them from following their calling would simply drive them into the ranks of clandestine prostitution. POLOSEBNOW recommended the multiplication of special hospitals for venereal and skin diseases. Herzenstein seconded this recommendation, and added to it one for women physicians to treat female patients, and for the diffusion of a popular knowledge of the nature and effects of syphilis. A female physician, SINAIDE ELZIN, discussing the police supervision of the Jahrmarkt in Nishni Novgorod, said there were present from 700 to 900 public prostitutes, and a multitude of clandestine prostitutes. Upon examination of 355 women, she found 22 women with urethritis, 2 with chancroid, only 1 woman with the initial lesion of syphilis, 1 with gummata, and 18 with condylomata. The frequency of syphilis in Russia may be gathered from the fact that PETERSEN made a calculation that more than 1600 persons become infected with syphilis every year in St. Petersburg, while Herzenstein found that in the five years from 1877 to 1882, 9543 men were relieved from military duty in Russia on account of the disease.

The most important conclusions of the Section on Syphilography were in favor of the popularization of knowledge in regard to syphilis, the erection of special hospitals, the separation of syphilitic prostitutes from non-syphilitic, the proper supervision of syphilitic infants in foundling asylums, the utility of women physicians in combating the spread of syphilis, the founding of benevolent societies to assist patients—syphilitics included—dismissed from hospitals, and the proper classification of venereal diseases into urethritis, venereal ulcer, and syphilis.

Somewhat over a year ago DRS. E. W. ALLISON and W. E. ASHTON, of this city, presented to the Philadelphia County Medical Society an elaborate paper on "The Failure of Legislation in Limiting the Spread of Venereal Diseases." The general tenor of this paper may be inferred from its title. Its principal conclusions may be summarized as follows: Legislation increases clandestine prostitution; this is the most dangerous form of prostitution, and more dangerous in countries in which there is legislative regulation of prostitution than where there is none; legislation tends to the spread of syphilis on this account, and also by the false sense of security in having intercourse with certified women which it effects; and, finally, educating the public concerning syphilis and furnishing proper hospital accommodations for venereal patients, are the rational means to limit the spread of these diseases. These conclusions, it will be observed, are very like those of the Russian Congress, and they may be regarded as those of most unbiassed students of the subject. It is fortunate that syphilis has never become in this country the scourge which it has been, and still is, in certain parts of Europe. Nevertheless, it is a very grave disease, and one which involves the innocent in a common ruin with the guilty. The libertine is but little more likely to suffer for his indulgence than is his injured wife and innocent child. The chaste and trusting maiden may acquire it from the lips of her unworthy lover, or the babe from its foster-mother's breast. How this can be prevented

it is hard to say, while men have appetite and women are willing to satisfy it for gain. Prohibition has never recommended itself to those who make laws, continence seems unattainable while human nature remains as it is, restriction does not restrict, medical examination is a delusion and a snare, and it would seem that the most promising means of limiting the spread of syphilis are those recommended above, namely, popular education in regard to the risks and consequences of acquiring syphilis, and better hospital facilities for its treatment. Police regulations cannot be effectively applied to this as to other contagious diseases, for the reason that the moral stigma which attaches to indulgence of the sexual appetite must always prevent complaint or proof of wilful or negligent communication of syphilis. Increased public intelligence and an improved morality are the only hope for the future.

It is regrettable that this fact does not seem obvious to the recently founded New York Society for the Prevention of Contagious Diseases, the first announcement of which lies before us. From the announcement we gather no promise but that of a free dispensary for venereal diseases, and of female physicians who will examine gratuitously prostitutes who ask for their services. A society with so laudable an object as is expressed in the title of this one should show something which could not be even misconstrued as an advertisement of the medical men connected with it, or as an indirect effort to increase their own gains.

We hope this subject of the prevention of venereal diseases may receive the careful consideration of our readers, and that we may soon record some intelligent and unselfish effort to deal with the delicate problems which it presents.

PRURIENT SCIENCE.

In connection with the attempt to place upon a permanent basis an American opera company, the clergy of America have recently expressed their opinion of the ballet, and we observe with pleasure that their opinion is not treated as an unwarranted interference by those who hope to see this country maintain a really first-class company of this sort. One of the reasons for the way in which the action of the clergy is received, is the fact that it has not been offensive or bigoted. It is true that a number of clergymen have declared their conviction that the opera cannot be made pure; but no small number have protested that it can. With the latter we agree, but we feel sure that this desirable end can be secured only by free criticism of what seems reprehensible—criticism offered and taken with sincerity and candor.

The same condition exists in regard to certain sorts of literature, of which medical literature is an example. The modern taste for the popularization of science has led to the publication of many books of a medical or semi-medical character, which are ostensibly intended for the instruction of the community, as well as for the benefit of the author. The latter object is a legitimate one, if the former be; while, if it be not legitimate, such publications are most dangerous to the well-being of the people. Unfortunately our own country has witnessed the spectacle of medical writers issuing volumes under the guise of scientific treatises, which contain matter which it is not too severe to call obscene, and which would be confiscated by the government under our postal laws if it were not for the claim that they are scientific publications. Our review columns can bear witness to the fact that we have not hesitated to raise our protest against the indecency of some such books, and to stigmatize the apparent willingness of certain authors to appeal to the basest passions of their readers.

We recur to this subject just now because of the recent appearance of a third volume of a work by an Italian professor of anthropology, which we will not name more fully for obvious reasons. The subject of this volume would be of fascinating interest to many men and women—and unfortunately, also, to many youths—to whom its science would be of little interest and of no use. If we lived in old Pompeii the book would probably be hailed with delight, but living in a clean land, and in a clean age, we trust that all right-minded men will share our opinion that it is worse than a waste of time for an able scholar to collect such a mass of prurient material as it contains, and far worse to put it within the reach of thousands who have no business with it.

And, again, we raise our voice against the prostitution of science to the use of prurient minds. In medical books and in less pretentious medical writings, the spirit of chastity should never be missed; and, if sometimes those who use the printing press use it to promulgate facts or opinions which are calculated to lower the standard of virtue in the community, it is the duty of all who have the opportunity to emphasize the error of their course, and to let it be seen that it cannot escape notice or condemnation. Such vigilance and such fidelity will go far toward preventing new accessions to the ranks of prurient medical authors, and in time we may hope the race will become extinct.

PALPATION OF THE PELVIC ORGANS.

An interesting point in regard to the palpation of pelvic organs made by Schultze, in 1885, has recently been cited in the *Centralblatt für die medicinischen Wissenschaften*. Schultze calls attention to the possibility of error from making pressure upon the intrapelvic muscles. The obturator internus may be felt

through the rectum or vagina as a distinct swelling, when the thigh is rotated strongly outward. Pressure upon the muscle is rarely painful, but pressure on the obturator nerve, which accompanies it, produces a cramp-like pain in the thigh. The belly of the psoas magnus may be mistaken for a morbid growth, an error which will not be likely to occur if the thigh be actively flexed and extended while the finger rests upon the muscle. The pyriformis muscle may also be a source of error unless a similar procedure be employed.

In these days when displacements of the ovaries and pelvic cellulitis fill so large a portion of the horizon of gynecology, it may be well to bear in mind the errors into which the muscles within the pelvis may lead an unwary examiner, and Schultze has done a worthy service in calling attention to them.

AN INTERESTING WORK.

At the last meeting of the College of Physicians of Philadelphia in the annual report of the Library Committee allusion was made to the rapid growth of the Library, and reference to its origin one hundred years ago. There was placed on the table the first donation to the Library, which included a splendid edition of the "*De Sedibus et Causis Morborum*," given by the illustrious Morgagni to Dr. John Morgan, the founder of the Medical Department of the University of Pennsylvania, on the occasion of his visit to Padua. Dr. Rush is responsible for the statement that Morgagni claimed kindred with Dr. Morgan on account of the resemblance of their names, and says that on a blank leaf of a copy of the work he inscribed the words, "Affini suo, medico præclarissimo Joanni Morgan donat auctor." Several writers have doubted the correctness of Dr. Rush's quotation, as no such words can be found in the volumes. On the inside title-page of Vol. I. there is the inscription beginning "Viro experientissimo et Humanissimo," and in Vol. II., "Viro de re Anatomica bene merito," but no such inscription as quoted by Rush. The title-page of Vol. I. shows that it had become so frayed and worn and the lower third of the page so very defective that some careful bibliophile had pasted it upon a new sheet of paper. On the old and thumb-worn fragments can still be discerned faint traces of writing which doubtless represent the first inscription by Morgagni which Rush had seen and copied before it had become faded and defaced by time.

A unique case of polymastia is described in the *Centralblatt für Gynäkologie* for November 6th, which is interesting from the fact that there were eight accessory breasts and nipples, the largest number ever observed. The upper pair were situated in the axillæ; the others were arranged symmetrically, with the exception of the lowest pair, which were situated on the same line, but on a different level; the lowest nipple was about on a level with the last rib. Milk exuded on pressure upon the respective breasts from all the nipples, while the flow from those in the axillæ was spontaneous and constant.

Measles and diphtheria are very prevalent in New York at the present time, and the epidemic is on the increase. During last week 558 cases of measles and 66 deaths were reported to the Board of Health. Of diphtheria, 109 cases were reported, with 50 deaths.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, November 8, 1886.

The President, Charles McBurney, M.D., in the Chair.

Dr. Lange presented at the last meeting a young man eighteen years of age, suffering from what he had diagnosticated as

ANEURISM OF THE OBTURATOR ARTERY.

The case gave rise to an animated discussion, opinions being divided as to the nature of the tumor and its subsequent treatment. He now presented the patient for further examination, stating that he asked the boy to call at his office about eight days later, and upon examination was astonished to find the pulsating swelling had entirely disappeared, at the same time the boy had lost the pain which he had complained of before as being sciatic in character; the boy said that after the examination here by the members of the Society, during the night the pain left him and has never returned, and neither has there been any swelling since. Dr. Lange remarked that he could find no plausible explanation of the case unless that a sudden obstruction of the main vessel had taken place.

Dr. Sands remarked that there did not seem any other explanation of the disappearance of the tumor except that the manipulations the young man underwent at the last meeting cured the aneurism. At the time when he was shown here, although there was difficulty in discovering the tumor, it certainly did exist and the general opinion was that it was a true aneurism of some one of the branches of the femoral or internal iliac. This case called to his mind a somewhat similar one occurring some twelve years ago in the Roosevelt Hospital. A man having a well-marked pulsating aneurism of the left axillary artery, entered the hospital and complained of sudden pain in his left arm; on examination no pulsation could be found in the left radial or ulnar arteries. It was suspected that this man had a large clot, displaced from the aneurismal sac, and situated in the upper part of the brachial artery, and that the absence of pulsation in the arteries of the forearm was due to that cause. He was kept under observation for six weeks, at the end of which time he was perfectly cured

of his aneurism, which meanwhile had ceased to pulsate. Dr. Sands thought the same conditions might have occurred here.

DR. STIMSON remarked that the history of aneurisms indicates that the coagulated blood could hardly disappear in so short a time.

DR. SANDS asked whether there had not been some difficulty at first in finding the aneurism.

DR. LANGE replied that there was, and it was only by severe pressure upon the obturator artery that he was able to detect pulsation at all.

DR. LANGE then reported the following case of

LYMPHANGEIOMA OF THE SCROTUM.

E. S., aged sixteen, from Wilkesbarre, Pa., born in that county, noticed, about one year ago, a swelling of his scrotum under acute symptoms—pain, redness, and local heat, which gradually and first with pain, later on without pain, increased until on the 2d of October, when the patient was first seen. It had then attained the size of two fists. At times small vesicles on the surface of the scrotum would burst, and with a free discharge of a clear fluid, and the swelling would somewhat diminish in size. Treatment was without noteworthy effect, the swelling increasing steadily. Numerous elevations were visible on the skin varying from the size of a sand-grain to that of a pea or small bean. On closer examination the larger ones proved to be composed of numerous small vesicles with clear watery contents. Some of these elevations had a wart-like, papillary character, others were more flat. On the lower part of the lateral aspect of the scrotum a fine network of distended lymphatic vessels could be distinguished, clearly differing from neighboring veins by their transparent condition. The skin of the penis was also involved to some extent near the root of the scrotum, and the pendulous portion of the penis was made almost invisible through the traction of the heavy scrotum, like a large hydrocele or inguinal hernia. Both testicles seemed normally developed, but around both fluid gathering in the tunica vaginalis could be made out. On the right side one was able to press both testicle and fluid into the inguinal canal, so that a distinct large prominence above Poupart's ligament could be achieved in this manner.

The patient suffered also from a similar swelling on his right leg which he has had from infancy. The leg looked pale, cylindrical on account of its prevalent thickening above the malleoli. The swelling has the same soft, flabby character, and consists apparently in a thickening of the subcutaneous layers.

Three weeks ago the scrotum was removed and on both sides Volkmann's operation for hydrocele was done simultaneously. The neighboring edges of both tunica vaginalis were sewed together and to both a common slit in the integument was left. The operation was done with very little loss of blood, after passing an elastic ligature around the root of the external sexual organs above two needles which transfixed the organs crosswise.

Recovery took place without any trouble. Still there can be seen here and there, in the new scrotum, some of those small watery vesicles, and Dr. Lange intends to make numerous punctures, which in a similar case had done him good service.

DR. ABBE remarked that the same patient was examined by him a week before he went to Dr. Lange, while he was at St. Luke's Hospital; but he had slipped from his observation and never returned, although he had sent a letter to him. At the time he saw him Dr. Abbe tapped one of the little vesicles and had the fluid examined microscopically for filaria. The patient had never been in a hot climate, and the examination proved negative; it seemed to be more like serum than lymph, was of a straw color, and also had not the property of gelatinizing.

HYPERTROPHY OF A LIMB FROM LYMPHATIC OBSTRUCTION.

DR. WEIR presented photographs of a young girl who had been seen when aged twelve, in 1883, for lymphatic obstruction, affecting the right thigh. The enlargement had then existed four years. The thigh, which was at that time only involved, measured three and a half inches larger than its fellow; the skin, while thickened, was smooth and movable on the subjacent parts. An elastic bandage was ordered to be applied, and was worn for over a year without benefit. Two years later the patient was again seen, when the thigh was six inches larger around than the left one, and the leg was now involved, and measured two and a half inches more than that of the unaffected side. The skin was more irregular, and studded in the upper part of the thigh by several little prominences. On incision lymph freely exuded, some of which was submitted to microscopical examination with a negative result; nothing could be felt in the abdominal cavity.

VARICOSE LYMPHATIC TUMORS.

DR. WEIR also showed, in further illustration of diseases of the lymphatics, a tumor, or rather two tumors, removed from a man of twenty-two years, who, residing in the West Indies, had suffered from pain in the upper and inner aspect of the thigh and in the scrotum, for the past four years. Running slightly above Poupart's ligament on the left side, and extending nearly four inches below it was a soft, irregularly outlined tumor, uneven in surface, which subsided when the patient laid himself down, and reappeared in the erect posture, and which gave an impulse on coughing. It simulated closely a hernia. It was associated with a similarly acting mass in the left inguinal canal, which reached nearly to the testicle. In the centre of the femoral tumor, which was some five inches broad, were several small nodules that were at first taken for fatty masses of omentum, but, on being isolated, it was found that they could be made sensibly smaller on pressure; whence the diagnosis was arrived at—a dilatation of lymph vessels. A vertical section allowed the growth to be exposed, and it was seen to consist of a congress of lymph vessels, situated mostly outside the fascia lata, but at the saphenous opening, closely adherent to the femoral vein and artery, and requiring careful dissection. The divided lymph vessels allowed very free discharge of milky lymph. Through the same wound, after removal of the thigh collection, after final ligatures of the main enlarged lymph vessel above and below, another incision was made above Poupart's ligament, and the inguinal canal opened into and another set of varicose lymphatics exposed and removed of the thickness and length of the thumb. Nothing could be felt on palpating the abdomen. The patient made a prompt recovery.

Stated Meeting, November 22, 1886.

Dr. Lewis S. Pilcher read a

NOTE ON AMPUTATIONS FOR JOINT-DISEASE WHEN LUNG TUBERCULOSIS COEXISTS.

The frequency with which tuberculous joint affections are complicated with tuberculous diseases of the internal organs, is such as to make the question of their mutual reaction one of importance.

Willemer, in his report on the results obtained in tuberculous disease of the knee-joint by König at the Göttingen clinic, during the seven years ending October, 1882 (*Deutsche Zeitschr. f. Chirurg.*, Bd. 22, Hefte iii. und iv.; *Annals of Surgery*, 1885, vol. ii. p. 514), states that of 174 cases operated upon, 15 per cent. of those below 10 years of age, 20 per cent. of those between 10 and 20, and 37 per cent. of those over 20, were complicated with tuberculous diseases of internal organs. Volkmann, in his address on tuberculous surgical affections, at the German Surgical Congress of 1885, said "Local tubercular disease of other organs combines far more rarely in children than in adults with fatally progressing lung tuberculosis. In an older individual, having,—*e. g.*, caries of the wrist, it is exceptional that he does not have or is not soon attacked by pulmonary tuberculosis." Vincent, of Lyons, in his article on scrofulo-tuberculous diseases of knees, in the *International Encyclopedia of Surgery*, vol. vi. p. 925, speaking of the results of a general scrutiny of patients affected with tubercular osteitis, or osteo-arthritis, says "Too often there are found manifest signs of advanced pulmonary tuberculosis."

It is needless to multiply authorities or observations for the purpose of emphasizing the frequency of the coincidence of tuberculosis of internal organs with knee and joint disease of like character. The question which I wish to submit for consideration in the present note, is, What modifying influence, if any, should the coexistence of an actively progressing lung tuberculosis have upon the operative measures which shall be adopted in the treatment of tuberculous joint affections? How is the lung tuberculosis likely to be affected by the operation upon the extremity? What disturbance in the repair of the operation wound in the extremity is likely to arise from the coexistent pulmonary trouble? Is it worth while, in the presence of an affection of an internal organ, which with great certainty entails a fatal termination, to subject a patient to the traumatism required to rid him radically of a local affection of an extremity?

A case in point is the following: In January, 1879, nearly eight years ago, I first was consulted by a lady, then thirty-seven years of age, on account of slight lameness of the right knee. There was a tenderness on pressure on the internal condyle of the femur, with some puffiness of the overlying soft tissues. In the preceding March she had slightly bruised this knee, the injury being so insignificant that it was not considered worthy of attention, until the subsequent increasing lameness compelled attention. The father of the patient, and a maternal uncle, had both died of tuberculosis pulmonalis; and at the period of the injury and during the subsequent years, the patient was suffering a severe strain upon her constitutional vigor through domestic afflictions and deprivations. It was impracticable for her to give to the limb the rest required for its proper treatment, and I shortly lost sight of her. Three years later, June, 1882, I saw her again, when she consulted me on account of persistent cough, with debility and loss of weight. Physical examination revealed a deposit at the apex of the left lung. Her knee was still troubling her some, but she was able to walk about without any marked limp. In the interval that had passed, she had had two attacks of acute synovitis of the affected knee. Under treatment during the summer and autumn, a markedly progressive improvement in her cough and in her general health took place, but her lameness increased, with periarticular muscular rigidity and nocturnal spasms, followed by a renewed acute synovitis. Immobilization with extension was instituted, and finally, pus having been demonstrated by the aspirator, free incision into the joint with antiseptic irrigations were made. The joint suppuration soon ceased under this treatment; the wound healed, and wearing an immobilizing apparatus, the patient was able to be around upon crutches during some months. An attempt to gain increased freedom of use was then followed by a renewed acute suppurative attack, which persisted despite antiseptic irrigations and drainage as before. The pain and loss of sleep combined with the discharge to sap the patient's general strength. Meanwhile the dormant pulmonary trouble was reawakened, and the general symptoms as well as physical examination indicated a rapidly progressing lung tuberculosis present.

In this case the aggravated character of the suffering caused by the knee joint affection, together with the depressing effect of the confinement to the bed which it necessitated, determined me to undertake a radical operation for the removal of the parts involved in the joint affection, despite the extent and activity of the lung disease. Perhaps the most important guide to the surgeon's action is to be found in what is suggested by the remark just made. Any possible remote unfavorable influence upon the lung affection that an operation might entail, or any possible disturbance of healing that might later affect the operation wound is thrown into the background by the more immediately pressing necessity of relief to the present suffering, which the knee and joint affection is inflicting. In a condition such as I have described, the joint affection constitutes an acutely urgent condition, the indications for the relief of which are of supreme importance.

Accordingly, in the case under consideration, I proceeded to operate in August, 1884. The joint was opened by the usual anterior semilunar incision as per exsection; the articular surfaces of the femur and tibia were extensively eroded, the crucial ligaments had disappeared, and the whole of the exposed surface was soft and friable. Upon attempting to apply the sharp spoon to it, the instrument passed almost without resistance for some distance up the shaft of the knee into a caseous mass. The evident tuberculous degeneration of the lower end of the femur was so extensive that complete removal of all the affected tissue by excision was out of the question. I therefore proceeded to amputate, making the section of the femur at about its middle third. The local result was all that could have been wished; healing per primam throughout most of the wound was effected. A simple small sinus persisted for some weeks,

but finally spontaneously closed. In three weeks the patient was able to leave her bed, and soon resumed the direction of her household affairs. The effect upon the lung tuberculosis was also very marked; the activity of its further progress was greatly hindered, cough diminished, appetite improved, and general strength increased. Two years and three months have now passed since the amputation, and the patient is still living, though she is far from being a well woman; being distinctly tuberculous, with cough, dyspnœa on exertion, and general debility. No extension of her lung trouble, however, has been manifested up to the present date. The stump is firm, and free from any signs of tubercular degeneration whatever.

In connection with this case, I would like to cite two cases which were embodied in a memoir by Dr. Mabbous, of Lisle, and commented on by Dr. Chauvel at the meeting of the French Surgical Society of February 10, 1886. In the first case, tuberculous caries of the metatarsal bones of a young soldier having been treated by resection, there followed synovitis of the periosteal sheath, and later, suppuration of the tibio-tarsal articulation and concomitant pulmonary tuberculosis. After three months, all the symptoms continuing to be more unfavorable, the foot was amputated; rapid cure followed; the pulmonary symptoms abated, and, finally, disappeared, and robust health was regained.

In the second case, likewise in the person of a young soldier, suppurating knee-joint disease and beginning pulmonary tuberculosis coexisted. Arthrotomy was done, the pus evacuated, the fungosities removed, and the denuded bone scraped; this was followed by redoubled suffering, probable meningitis, and more pronounced pulmonary symptoms. At the end of a month the pain was atrocious, emaciation extreme, the exhaustion almost complete, and early death certain. At the earnest wish of the patient, and in spite of the gravity of the condition, amputation of the thigh was done. Great improvement followed for one month, then the stump ulcerated, fever reappeared, tuberculosis of the abdominal viscera declared itself, and, finally, death at the end of four months after the amputation, but no recurrence of the intense suffering for which the operation had been performed.

In the discussion which followed M. Chauvel's report, a number of additional instances were adduced in which either apparent complete recovery, or great improvement in a lung tuberculosis had followed amputation for coexisting joint disease. All, however, were not ready to accept the tentative proposition of Chauvel, that local tuberculosis, as in osseous and articular affections, is to be considered as a neoplasm, the more malignant from its tendency to generalization, and to be treated under the same rules as sarcoma and carcinoma; and that early amputation is indicated whenever the extirpation of the disease in place is impossible, or when the anatomical conditions do not permit the complete and certain ablation of all the infected tissues.

Without attempting any elaborate discussion of the many phases which are presented by coexisting lung tuberculosis and osteoarthritic tuberculosis, the materials for which have amassed in great abundance during the last few years, I desire to close the present brief note by the following theses, which seem to be in accordance with present experience:

1. The probabilities of a spontaneous cure, or prolonged abeyance of a tubercular bone or joint trouble, as the result of expectant and palliative treatment—*e. g.*, improved hygiene, rest, counter-irritation—is much greater in children than in adults.

2. The probability of the presence or early development of lung tuberculosis in case of tubercular bone and joint affections, is much greater in adults than in children.

3. Incomplete operations, as drainage and irrigation of joints, évidement, and resections in which all of the diseased tissue is not removed, are less likely to be followed by ultimate good results in adults than in children.

4. Operative interference of a radical character is justifiable at an earlier date, in the history of a bone or joint tubercular affection, in an adult than in a child.

5. When a lung tuberculosis is present, and an operation for the relief of a coexisting bone or joint affection is indicated, as the result of such operation the lung affection, while in some cases influenced, is more frequently temporarily checked in its progress, and in some instances is apparently entirely removed.

6. Local relapse after operation for an osteo-arthritic tubercular disease, lung tuberculosis coexisting, is exclusively conditioned upon incompleteness of the operation,—the fact that somewhere tubercular tissue escaped removal—and not upon any influence exerted by the lung affection.

7. In any case of osteo-arthritic tuberculosis demanding operation, in which a doubt exists as to the possibility of removing absolutely all the diseased tissue by the more conservative methods of arthrectomy or excision, the coexistence of lung tuberculosis would be a circumstance that would add weight to the reasons for having recourse to the more radical operation of amputation.

8. After an amputation in perfectly healthy parts, as prompt healing may be expected in persons suffering from lung tuberculosis, as after such an operation in a healthy person. Relapses at the stump do not occur even in persons with advanced lung disease.

DR. LANGE presented a boy, ten years of age, upon whom he had performed

RESECTION OF THE HUMERUS FOR FRACTURE.

The boy fell from a tree seven weeks ago, a distance of about eight feet, striking on his right shoulder. On admission to the German Hospital, two days later, a fracture of the right humerus was found immediately below the head. The lower fragment had apparently entered the deltoid muscle, and, with a sharp edge, was fixed within the deep layer of the skin, without penetrating it. In this way a distinct protrusion was formed on the anterior aspect of the shoulder, the elbow being thrown backward, so that the axis of the humerus was directed abnormally in front. There existed a very extensive extravasation of blood, but no general disturbance. It was quite impossible to detach the lower fragment from its abnormal attachment; even the skin was so tightly fixed to the bone that it could not be made loose. On the seventh day, after swelling and tension had markedly subsided, the patient was put under ether, but it was found impossible by manipulations to replace the bone. An incision was then made over the displaced

fragment, the slit in the deltoid muscle enlarged, and, by proper manipulations, efforts were made to bring the fragments into coaptation. The fracture itself presented the following condition: There was separation exactly in the epiphyseal junction as far as the middle of the bone; from there the line of fracture went in an oblique downward and backward direction, its lowest point being about two inches below the level of the epiphyseal line. In order to bring the fragments into proper apposition, it was necessary to elevate the arm above the horizontal line, and to give it a strong outward rotation, at the same time bringing it slightly forward. The periosteum and fibrous attachments on the edge of the upper fragment, were not torn exactly in the line of fracture, but at a short distance below, so that they overlapped the edge of the upper fragment, and had to be turned upward. The periosteum had to be slightly indented, and then the coaptation of the fragments could be effected; the long tendon of the biceps was not torn, but lifted out of its ridge, and dislocated to the inside. With the lower fragment it returned to more normal relationship. The wound, after some days of high temperature, but without other general disturbances, healed kindly. For some time after the removal of the drainage tube, bare bone co ld be felt; the periosteum having been lifted off the lower fragment to a great extent; but no necrosis occurred, and complete cicatrization has taken place.

The case was very interesting, in that the upper fragment, by the action of the muscle insertion on the tuberculum majus, is abducted and rotated outward. Consequently, during the after-treatment, the corresponding position of the arm was maintained with slight extension, and a splint which passed from the posterior aspect of the arm over the back to the opposite scapula. Recently, that way of treating fractures of the uppermost portion of the humerus has been recommended by Bardenheuer. It confines the patient to bed for a long time, but it certainly secures the physiological relations of the fragments.

Very shortly after this operation was done, a man was admitted to the German Hospital who had a fracture of the surgical neck of the humerus. He was treated on the same principle, was kept in bed for nearly five weeks; during the last week the arm was gradually brought down and, though the patient was discharged before complete recovery had taken place, it could be seen from the comparative freedom of the movements in the shoulder at that time that the treatment would yield a very good final result.

From these two observations he felt entitled to recommend Bardenheuer's method of treating fractures in the upper part of the humerus. In fractures of the upper third of the thigh he had for a number of years followed a similar principle and has every reason to be satisfied. The task in treating fracture being at all times to bring the fragments into a position most similar to the normal, if the upper fragment is not under our control we must make concessions with the lower.

Dr. Stimson said that abduction of the joint was still lacking by about a half, and rotation almost entirely. The angular and rotatory displacement of the upper fragment after fractures of the upper part of the humerus was, he thought, generally recognized, as was also the necessity of placing the lower one in a corresponding position during treatment.

The President remarked that the arm could be raised to nearly a right angle with the body without moving the scapula; but at that point the scapula began to move.

Dr. Lange stated that this was almost the condition of the normal subject.

Dr. Weir thought this variety of fracture was not at all unique, as he could recall a good many instances where the result in usefulness of the limb did not differ from this materially. The only advantage which the operation affords, is, that there is less deformity from reposition of the lower fragment, as a rule, though it is not at all easy to overcome the displacement; yet securing the arm to the chest wall and carrying of the forearm in a sling, have given results far from unsatisfactory. He would be very loath to follow the example suggested by Dr. Lange, which, though successful, has the disadvantages which of necessity appertain to an operative procedure, even though conducted under antisepsis. Bardenheuer's method he had not tried, but thought it would be very awkward to carry out. In his experience the fracture was a less difficult one than it looked to be.

Dr. Lange remarked that if Dr. Weir believed he preferred the radical operation, he was mistaken. But that in this patient there were perforation and interposition of the deltoid, and from the position of the fragments an operation was indicated; he did not think in this case the result would have been satisfactory unless operative procedure were effected. In the second case he mentioned, he had only carried out the principles of elevation and rotation. He considered the method of treatment very rational.

Dr. Weir could recall two recent cases in which one fragment of the bone projected through the muscle and was lodged under and in the skin; but although reduction could not be made good union resulted; as in each case, the lower portion of the fractured surface, from its great obliquity, was opposed.

Dr. Lange had very strong doubts if reduction and a satisfactory result could have been secured in the patient he presented, without the operative procedures he had followed.

Dr. Wyeth presented a young man upon whom he had operated for

CONTRACTION OF THE PALMAR FASCIA,

and fixation of the tendon of the superficial flexor of the ring finger to this fascia, giving the following history:

W. R., seventeen years of age, on the 15th of last June fell and received a deep wound of the palm of the hand. He suffered from contraction of the palmar fascia, and the superficial tendons of the ring finger of the left hand. Five weeks ago he was seen by Dr. Wyeth, who found the finger drawn down in contact with the palm and incapable of being extended, although there was limited motion. An Esmarch bandage was applied and sixty minims of a four per cent. solution of cocaine injected into the hand in the line of the proposed dissection. The contracted tendon was then exposed and found to be adherent to the palmar fascia. The adhesions were divided and the fingers restored to their normal position. It was a perfectly dry operation and the patient suffered no pain. There was very marked ab-

duction of the little finger caused by injury to the minimi digiti which was cut through at the time of the accident. To correct this deformity a second cocaine operation was made and about one inch of the abductor minimi digiti was exsected, so that the patient can now carry the finger into line. He now uses the palmar interosseous muscle to a certain extent and has some adduction in the little finger, and has perfect motion in the finger which was bound down. One of the principal features of the operation was,—the perfect immunity from pain under the use of cocaine.

DR. PILCHER presented a woman whose case he had reported in his paper on prophylactic arterial ligation about a year ago, the case being one in which a

SIMULTANEOUS LIGATION OF BOTH THE SUBCLAVIAN AND INTERNAL JUGULAR VEINS

had been done for a wound sustained during an operation for the removal of a carcinomatous glandular tumor at the base of the neck. One year and a half had elapsed since the operation, and Dr. Pilcher thought it might be of interest to show the ultimate result of such an unusual interference with the blood supply to the upper extremity. Amputation of the breast for carcinoma had been done first some years ago; the disease, however, again made its appearance in the axilla and base of the neck above the clavicle. The operation by Dr. Pilcher consisted in the removal of all diseased tissues: the axilla was cleaned out, and in the course of lifting the tumor up from the base of the neck, for the purpose of enucleating it, a strong hemorrhage took place from the inner angle of the wound.

On exposing the field of operation it was found that a slit had been torn in both the internal jugular and subclavian veins just previous to their convergence to form the innominate. The original incision was enlarged and the tissues drawn aside to bring the wounded parts into view; a double ligature was applied to both bleeding vessels. In consequence of the great turgidity of the veins of the extremity that immediately followed, Dr. Pilcher ligated the axillary artery high up. The immediate consequence of the operation was considerable œdema of the arm coming on at the end of a week, and persisting for several weeks, but finally leaving the arm in its present condition, which shows a somewhat increase of size when compared with the other. It seems as though the tissues in this arm were a little more succulent. There has been no recurrence of the disease since the operation and the woman is apparently perfectly well to-day.

He also referred to a case reported in one of the Russian journals in which ligation of the subclavian vein and artery had been done at the same time to arrest the hemorrhage from a blind cut, which had been made in an attempt to enlarge an abscess sinus for the introduction of a drainage tube. In this case also the result was good; but during convalescence it was complicated by suppurative inflammation of the shoulder and elbow-joint. He knew of no other case on record where the internal jugular and subclavian veins had been tied simultaneously: the case he referred to in the Russian journal being the only one of a similar nature so far as the simultaneous ligation of the main artery at the root of the arm is concerned.

Dr. Pilcher, in reply to inquiries, stated that there were two rents, and that ligatures were placed on either side of the rents both in the internal jugular and subclavian veins.

DR. LANGE remarked that about an hour ago he had the mishap to open the crural vein immediately below Poupart's ligament at the entrance of the saphenous vein, while operating for the extirpation of a malignant tumor in the groin. The edges of the wounded vein were drawn together with catgut sutures, but did not include the lumen of the vessel; a complete and perfect closure was effected in this manner. The loss of blood was not considerable. A lateral ligature did not hold in this case, the walls of the vessel being thickened and resistant.

DR. WYETH remarked that the condition of the arm in Dr. Pilcher's case reminded him of a case in which he operated for the removal of carcinomatous glands of the axilla, during an operation for removal of cancer of the breast. The carcinomatous tissue was studded along the axillary vein so closely, that in order to remove all of the diseased tissue he was compelled to ligate this vein and all the branches emptying into it, and exsect the part from just below the clavicle down to the brachial region. The patient recovered: and although the circulation of the arm upon that side was good, there resulted the same flabby condition of the forearm as observed in Dr. Pilcher's patient; but she had a very useful arm for sewing and light work. He had seen her a month ago, now more than two years after the operation; when she had the first symptoms of a return of her old disease in the glands of the neck and in the lung.

THE PRESIDENT asked Dr. Pilcher if he believed that ligation of the artery would diminish the chances of œdema.

DR. PILCHER replied in the affirmative, and stated that in his patient the conditions were peculiar, as not only were the veins of the axilla cut off; but the veins of the shoulder, the transverse cervical veins and supra-clavicular veins had been cut off during the operation for the removal of this supra-clavicular growth; so there seemed to be nothing but the capillaries through which the blood might return to the trunk.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, December 16, 1886.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

DR. HENRY E. CRAMPTON, Secretary of the Section on Hygiene, Public Health, and State Medicine, reported that at the first meeting of the Section, which was held Friday evening December 3d, DR. BLAINE, of the Willard Insane Asylum at Ovid, N. Y., read a paper on

BOVINE TUBERCULOSIS; ITS COMMUNICATION BY INHALATION, INGESTION, AND HEREDITARY TRANSMISSIONS, AND ITS DANGERS TO PUBLIC HEALTH.

His attention was especially drawn to the subject by an outbreak of bovine tuberculosis among the cows belonging to the Asylum. He was enabled to make a very careful and thorough series of observations, and on this occasion presented a large number of pathological specimens of much interest. Tuberculosis had been

induced in a number of rabbits and other animals by inoculations from the diseased cows, and in calves by the drinking of their milk. Hence, it was reasonable to suppose that human beings were liable to become infected from tuberculous animals, and the subject was, therefore, one of very great practical importance. In the course of the paper Dr. Blaine expressed the opinion that two per cent. of the cattle slaughtered for market, and no less than twenty-one per cent of milch cows, were affected with tuberculosis.

Dr. Herman Knapp made an address on

FERMENTATION, PUTREFACTION, AND SUPPURATION; WITH DEMONSTRATIONS AND EXPERIMENTS.

He had been particularly impressed, he said, with a remark made by Professor Briege, of Berlin, a short time since, to the effect that the great majority of all diseases seem, in the light of recent investigations, to be of bacterial origin. He then referred to the health reports of New York for a single week in the latter part of August. 33 per cent. of the deaths were reported as being due to infectious diseases; 16 per cent. to consumption; and about 5 per cent to croup and diphtheria. Here were nearly 55 per cent. of the mortality attributable to diseases of undoubtedly bacterial origin. In addition, 20 per cent. of the deaths were from diarrhœal diseases, and at least 90 per cent., if not all of these, were cases of germ disease. This brought the percentage up, therefore, to 75; but this did not include such affections as pneumonia, peritonitis, syphilis, gonorrhœa, and skin affections, which were not entered as infectious diseases; and if only 10 per cent. of these were classed as of this character, it would increase the percentage to 85. Still, nothing had been said of surgical diseases in which undue suppuration was caused by microbes, and estimating the deaths from these at 5 per cent., we have a grand total of 90 per cent of the deaths due to diseases of bacterial origin. It seemed, therefore, that Professor Briege was right.

Bacteriology has shown its principal fruit in surgery. It is antisepsis that has advanced this branch of medical science to its present high position. Antisepsis, however, is nothing but the practical application of fermentation, putrefaction, and suppuration.

He next gave a *résumé* of the history of fermentation from the year 1788, when Lavoisier found that sugar was split into carbonic acid and alcohol by the process of fermentation, which he thought was simply chemical in character, knowing nothing of the animated life that was concerned in it. He spoke of the researches of Carnéature (who discovered the yeast-plant in 1835), Ampère, Guélumae, Turpin, Franz Schultze, Liebig, Schwann, Helmholz, Schröder, Pasteur, Tyndall, and Lister; and showed that four principles had been applied in excluding germs, so that no fermentation could take place. Fermentation he described as the decomposition of carbohydrates through the agency of the yeast-plant; and he compared the action of the latter to that of the bacteria which cause putrefaction and suppuration.

Putrefaction is produced by different kinds of bacteria, fifteen or twenty varieties of which had now been discovered. There are two grades of putrefaction. The first is met with when there is but little oxygen present, and the products are water, carbonic acid, and ammonia. The process of decomposition is accompanied by little or no offensive odor. The second grade, or putrefaction proper, is seen when there is a larger quantity of oxygen.

Dr. Knapp then went on to ask, Are suppuration and putrefaction the same thing? Surgeons used the two terms promiscuously, and it seemed that suppuration, if not identical with putrefaction, was its consequence. There was, however, one point of difference as would be seen. Having spoken of the experiments of Recklinghausen, and others afterward, with the cornea of the frog, he referred to the common assertion of surgeons that if germs were excluded, suppuration would not take place. He had undertaken to investigate three special points in this connection, viz.:

(1) Does mere traumatism produce suppuration?

(2) Do foreign bodies alone produce suppuration?

(3) Do chemical agents alone produce suppuration?

In the first place, then, Does mere traumatism produce suppuration? In Berlin and at home he had made a number of experiments on the eyes of rabbits. If a wound had been made by a perfectly clean instrument he had found that it would heal by first intention, with no suppuration whatever; but if the wound was made by a contaminated instrument, suppuration invariably resulted. Dr. Knapp exhibited a rabbit in which extraction had been practised on one eye with a clean knife, and the other eye had been operated on with an instrument contaminated with pyogenic organisms. The result was, that in one case the parts had perfectly healed without any suppuration whatever, and in the other profuse suppuration had been at once set up, and pronounced staphyloma finally produced. He said he had performed a number of similar operations, and the wounds made by clean instruments had never suppurated.

One of the axioms on which antisepsis rests is, that simple fractures never suppurate. This is true, as a rule; though there are rare exceptions. When suppuration does occur, however, it is always in cases where some other form of suppuration is found in the body. Whenever the patient is healthy, therefore, no suppuration takes place. In support of this statement, he mentioned the experiments of Becker, who, having made fractures in animals, injected pyogenic fungi into the ear; with the result of at once producing suppuration, although the existing injury was only a simple fracture. Other similar experiments showed how ulcerative endocarditis and other suppurative processes could be produced by the introduction into the system of pyogenic organisms.

Dr. Knapp next took up the inquiry, Are foreign bodies by themselves capable of producing suppuration? The conclusion at which he arrived was that if they were introduced antiseptically they would produce no suppuration, and that they could remain indefinitely without this being the case. By way of illustration, he exhibited a rabbit into the cornea of one of the eyes of which he had introduced, by means of sterilized instruments, a piece of rusty hair-pin, after having first brought the latter to a glow for the purpose of destroying any organic matter that might be attached to it. The result was, that no suppuration whatever had been produced, although the foreign body had now been in the eye for quite a long time. Into the cornea of the other eye of the same

rabbit, however, he had introduced a piece of the same rusty hair-pin, which had been dipped in fluid containing pyogenic fungi; and within twenty-four hours a violent phlegmon was set up which soon completely destroyed the eye. Still, the truth of the proposition that foreign bodies alone will not cause suppuration was not yet generally admitted, and Pasteur, in 1878, had stated that even if foreign bodies were introduced antiseptically they were capable of producing suppuration. Whether he still adhered to this view Dr. Knapp was unable to say.

He then came to the third question, Do chemical agents by themselves ever produce suppuration? This, he said, was almost universally answered in the affirmative. Especially in the case of croton oil it is claimed that suppuration is caused without the intervention of germs. If this exception could stand, however, the theory of suppuration would not stand. It is a very difficult question to test satisfactorily in a practical manner; but the problem had been undertaken by four observers under very strict rules. The results of their experiments went to show that chemical agents do not of themselves produce suppuration. In repeating some of their experiments Dr. Knapp had experienced much difficulty, especially as regards croton oil, on account of the extreme irritation which it causes. Oil of turpentine, however, he had found much more manageable. He had followed the method of J. Straus, which he proceeded to describe. On account of the practical impossibility of otherwise completely disinfecting the fur of the animal, he sterilized the skin of the rabbit by means of the actual cautery. Then having made the injection under the skin of the chemical agent to be tried by means of the sterilized apparatus, the opening made by the needle was sealed up by the actual cautery. Some of the experiments were made by means of a pipette, the opening in the skin being made with a heated knife. With the experiments made with oil of turpentine and croton oil (although there were only five in which the latter was used) suppuration resulted in only ten per cent. of the cases. As a rule, there was coagulation necrosis, but no suppuration. In the cases in which suppuration did occur, it was found that there were always germs present, on account of some imperfection in the experiment.

Boice, of Utrecht, had performed the same experiments in connection with the anterior chamber of the eye, which had the great advantage of allowing the whole process set up by the chemical agent to be observed by the experimenter; and Dr. Knapp had followed Boice's procedure. He had also in one instance introduced the chemical agent into the abdominal cavity. No appreciable effect was produced upon the animal, and when, two weeks afterward, it was killed, no pathological changes whatever could be observed. He then exhibited Koch's syringe, which, he said, he had found very useful in making his experiments. In his experiments on the eye inflammation was caused, but no suppuration, even with croton oil, which he found could be used with more satisfaction when mixed with olive oil in the proportion of one to two. In some of his experiments the injection was made through the sclerotic. When the same chemical agent (either croton oil or turpentine) was introduced into the other eye in connection with pyogenic fungi, the most violent inflammation and suppuration were always produced.

He also made cultures from the two classes of eyes, using staphylococci principally for this purpose. From the eyes containing pus an immense number of microbes, with pus, resulted. But microbes (although no pus) were also obtained from the eyes from which pyogenic fungi had been excluded, and this required an explanation. The animals were killed, and microbes were found, not only in the eyes, but also in the kidneys and the blood, although there appeared to be some in the brain. It was evident, therefore, that the system had become infected through the suppurating eye, and the microbes which were found in the other eye had originated from this source. Hence it was determined to make the control experiments in two different series of animals, instead of operating upon the two eyes of the same animal. This experiment was, he thought, satisfactory and conclusive. In the eyes into which pyogenic germs were introduced, suppuration occurred, and microbes were found in larger numbers; but in the eyes from which such germs were excluded there were neither suppuration nor microbes. The results found in the latter were merely coagulated fibrin and fibrino-leucocytic exudation. Dr. Knapp thought, therefore, that so far as these experiments went, we were justified in formulating the proposition that suppuration is always produced by microbes, and hence there can be no suppuration without the intervention of these morbific agents.

In conclusion, he asked, What is suppuration? Just as in the case of fermentation, he said, the microbe ought to enter into the definition. We say that fermentation is the splitting up of a hydrocarbon into simpler forms through the agency of the yeast-plant. Putrefaction, again, is the similar splitting up of a nitrogenous substance through the agency of microbes. Suppuration, then, is likewise the splitting up of a nitrogenous substance through the same kind of agents. The difference between the two is that in putrefaction the process is always concerned with dead nitrogenous substances, while suppuration always takes place in living nitrogenous tissues. In this way the parallelism of these processes is established.

Dr. Charles Heitzman remarked that the great stress which the latter laid upon the importance of bacteriology was abundantly justified in the light of recent advances in this department of medical science. Twenty years ago it was found that if acid urine were injected into any part of the body, no results ensued; but if alkaline urine were injected, the most intense disturbance was excited. The experiments of Koch and others had shown that this marked disturbance was due to the presence of microbes.

While Dr. Knapp's experiments, and the others to which he had referred, showed that suppuration could not be produced without microbes, other experimenters of the highest authority had come to the conclusion that there could be pus absolutely without the presence of microbes. Dr. Knapp, however, would explain that by saying that it was not pus which those observers saw, but a collection of leucocytes; and he (Dr. Heitzman) was inclined to think that he was right. Still, Koch, the great master of bacteriology, was as yet by no means convinced of the correctness of the view that suppuration is absolutely dependent on the action of microbes.

Dr. Heitzman said that he had been deeply impressed with the results obtained by Dr. Knapp, and that, for one, he was willing to admit that not a single microbe could be found in the cases where care was taken to exclude absolutely all pyogenic germs, and that there was likewise no suppuration whatever. Suppuration is by no means synonymous with inflammation, and it is entirely possible to have severe inflammation, characterized by hyperplastic manifestations, but entirely devoid of suppuration. It is difficult to understand, however, how in cases of osteomyelitis developing suddenly in healthy subjects apparently as the result of traumatism, the microbes could be introduced into the middle of the bones.

CORRESPONDENCE.

THE EXTRACTION OF A COCKLE-BUR FROM THE LARYNX.

To the Editor of The Medical News,

Sir: *A propos* an article in the number of The Medical News for December 11th, on the successful removal of an extraneous body (cockle-bur) from the larynx, by Dr. Crawley, of King, Mississippi, I would like to call attention to the following case:

I operated upon a boy, æt. fifteen, about one year ago, who had inspired a cockle-bur, which, being firmly impacted between the vocal cords, resisted all attempts at extraction by laryngeal forceps of different shape and size. The cause of these vain attempts was, that the bur, from its position, encroached on the mucous membrane on three sides, where it was impacted by numerous prickles, whilst the forceps could grasp only a small part of the periphery. Finally I introduced, with the aid of the laryngoscope, the sponge instrument (a small sponge fastened to a strong laryngeal probe) of Voltolini into the larynx, behind and below the cockle-bur; and, the numerous prickles of the bur twining into the meshes of the sponge succeeded, by the first forcible traction, in dislodging the bur from its position, and it flew to a considerable distance out of the oral cavity.

I reported this case to the Cincinnati Academy of Medicine on January 28, 1886, and it is, I believe, the *first* case of removal of a foreign body from *that region of the larynx* by this simple method.

Very respectfully yours,

Max Thorner, M.D.

Cincinnati, December 14, 1886.

THE COLLECTIVE INVESTIGATION OF DISEASE.

To the Editor of The Medical News,

Sir: At the session of the International Medical Congress of Copenhagen, I was appointed the American member of the Committee of Collective Investigation, and permitted to select a colleague in the United States. Thus the pamphlets and circulars prepared by, or with the authority of, the General Committee in London, were distributed under the names of N. S. Davis and the undersigned. They were made returnable to my address on January 1, 1887.

As I have resigned my position on the above committee, I require the permission and privilege of notifying, through your journal, the holders of the above pamphlets that they ought to be sent to N. S. Davis, M.D., 85 Randolph Street, Chicago, Ill., instead of to the undersigned.

Very respectfully,

A. Jacobi, M.D.

New York, December 19, 1886.

BERI-BERI.

To the Editor of The Medical News,

Sir: Referring to the editorial in the current number of The Medical News relative to the cases of *Beri-beri* described by Dr. E. C. Seguin, and making the statement that this disease had not heretofore been described in this country, I beg to inform you that eighteen cases of beri-beri were admitted to the Marine Hospital at San Francisco, then under charge of Surgeon E. Hebersmith, in August, 1880.

A full clinical report of these cases with autopsies of those fatal, microscopical examinations of the blood by Prof. Wythe, and consular reports of the disease as it occurs in the Orient, will be found in the annual report of the Marine Hospital Service for 1881.

Very respectfully,

Fairfax Irwin,
Passed Ass't Surgeon, M. H. S.

Washington D. C., Dec. 18, 1886.

NEWS ITEMS.

Fernandez on a New Anti-rabies Inoculation.—Dr. Fernandez, of Barcelona, claims to have discovered a new vaccine to preserve men and animals from the contagion of rabies. He has collected a great number of observations, showing that dogs bitten accidentally by vipers are never affected by rabies, either spontaneously or when bitten by affected animals. He has made certain direct experiments, inoculating dogs with a small quantity of the viper's poison. After inoculation the animals were ill for four or five days, with symptoms of slight fever, prostration, and more or less profound somnolence. He maintains that the animals thus operated on are protected from rabies, and that neither when inoculated with the saliva, nor when bitten by affected animals, do they contract the disease.

Solubility of Morphine in Lime-water.—Doubtless many physicians who have given sulphate of morphine in solution in lime-water have not settled in their minds the chemical compatibility of the mixture. Some recent experiments in the assay of morphine by Wrampelmeiner & Meexert, show the mutual solubility of lime-water and morphine.

Benjamin Franklin on Wells.—This great man, who was the munificent founder of Philadelphia's water works, had observed that the water of wells in populous places gradually became unfit for use, and therefore bequeathed the city £100,000 for the purpose of bringing pure water from Wissahickon Creek. But he had a curious notion of the cause of the deterioration in well water, which came near being the reverse of the truth. In his will, referring to the bequest, he said:

"Having considered that the covering of the grand plot of the city with buildings and pavements, which carry off most of the rain, and prevent its soaking into

the earth, and renewing and purifying the springs, whence the water of the wells must gradually grow worse, and in time be unfit for use, as I find has happened in all old cities, I recommend that at the end of the first one hundred years, if not done before, the corporation of the city employ a part of the one hundred thousand pounds, in bringing by pipes the water of the Wissahickon Creek into the town, so as to supply the inhabitants, which I apprehend may be done without great difficulty, the level of the creek being much above that of the city, and may be made higher by a dam."

THE PIROGOFF SURGICAL SOCIETY OF ST. PETERSBURG is taking the lead in a movement for providing a central place of meeting for all the medical societies, where also accommodation will be found for all their libraries.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE will hereafter be issued under the imprint of J. H. Vail & Co., New York.

THE AMERICAN RHINOLOGICAL ASSOCIATION would be pleased to have authors send any monographs, papers, or books, treating of any disease pertaining to the nose, throat, and ear, to the librarian, Dr. N. R. Gordon, Springfield, Ill. Due acknowledgment will be made by the Association.

LADY STUDENTS IN DUBLIN.—At the recent first professional examination of the Royal College of Surgeons in Ireland, there were seventy-eight candidates. A lady student took the first place. She is now attending the wards of one of the Dublin clinical hospitals, in company with the ordinary class of students.

THE PLAGUE OF EELS IN LONDON.—The inhabitants of the east end of London are suffering from a plague of eels. Everybody knows that the monthly reports of the chemists employed by the water companies show conclusively that the water is absolutely free from living organisms, and the explanation seems to be that the organisms are too large to get into the microscopes. The fish which the East London Company are distributing to their customers are indeed easily visible to the naked eye, for some have been found no less than eighteen inches long, and the mains abound with them to such an extent that the local board of West Ham has complained to the local government department, with the view of having some remedy applied. The eels, instead of fulfilling their destiny by being legitimately caught, skinned, and cooked, have a fashion of committing suicide in stop-cocks and taps. There they decompose, with the result, as illustrated lately, of causing the water to become horribly putrid, and of giving something very like typhoid fever to the unlucky consumers. A whole family has just been laid prostrate in this way, and one or two of its members are still seriously ill. The company has been appealed to, with little result. They say that three years ago some of their filter-beds burst, and that the unfiltered water on that occasion made its way into the mains, carrying with it a number of minute eels and other fish, which have since spawned and multiplied in the pipes. The mains have been repeatedly flushed, with the object of getting rid of the intruders, but without success; and the company's engineer is only able to tell the sanitary authority that he does not consider that the water is injured by the eels as long as they are alive, though he admits that a dangerous nuisance may arise from them when dead. The matter is really a very serious one, for the evil is steadily on the increase. There is one consideration, too, which does not seem to have occurred either to the local board or to the company, and that is whether water that can under the conditions of its distribution here support the life of fish, is fit for human consumption? On what do the eels feed? Clearly not on weeds or other vegetable substances, for the water is confined in iron mains. If, however, they find enough animalcules in the water to enable them to live and grow to a considerable size, is it certain that what is eel's food may not be man's poison?

MERLATTI, THE FASTER, had, at last accounts, fasted for fifty days. He has been under strict surveillance, and has, it is said, taken only filtered water. He has lost twenty-two pounds of flesh. The daily excretion of urea has fallen to eight grammes. The heart beats sixty-six times per minute, and sphygmographic tracings show low arterial tension. There is a reduplication of the second sound.—*Medical Record*, December 18, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 14 TO DECEMBER 20, 1886.

WILLIAMS, JOHN W., *Major and Surgeon.*—Ordered for duty at Jackson Barracks, Louisiana.—*S. O. 205, Division of the Atlantic*, Dec. 14, 1886.

POPE, BENJ. F., *Major and Surgeon.*—So much of S. O. 285, A. G. O., Dec. 9, 1886, as directs him to report in person to the President of the Army Medical Examining Board, New York City, for duty as member and Recorder of the Board, is revoked.—*S. O. 287, A. G. O.*, Dec. 11, 1886.

CORSON, JOS. K., *Captain and Assistant Surgeon.*—Leave of absence extended seven days.—*S. O. 288, A. G. O.*, Dec. 13, 1886.

ANDERSON, C. L. G., *First Lieutenant and Assistant Surgeon.* Assigned temporarily to duty at Whipple Barracks, Arizona.—*S. O. 132, Department of Arizona*, Dec. 7, 1886.

BALL, R. R., *First Lieutenant and Assistant Surgeon.*—Ordered for duty at Fort Riley, Kansas.—*S. O. 144, Department of Missouri*, Dec. 13, 1886.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE THREE WEEKS ENDING DECEMBER 18, 1886.

BANKS, C. E., *Passed Assistant Surgeon.*—Granted leave of absence for twelve days, Dec. 16, 1886.

CARRINGTON, P. M., *Assistant Surgeon.*—Granted leave of absence for fifteen days, Dec. 6, 1886.

WILLIAMS, L. L., *Assistant Surgeon.*—Upon expiration of leave, to proceed to Boston, Mass., for duty, Dec. 17, 1886.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS *should be addressed to No. 1004 Walnut Street, Philadelphia.*

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